UNIVERSITY OF CALIFORNIA
COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION
BERKELEY, CALIFORNIA

THE CALIFORNIA POULTRY INDUSTRY: A STATISTICAL STUDY

EDWIN C. VOORHIES

BULLETIN 413
NOVEMBER, 1926

UNIVERSITY OF CALIFORNIA PRINTING OFFICE
BERKELEY, CALIFORNIA
1926

This bulletin has been made possible through the coöperation of many agencies which have generously contributed from their data and time. Among these are the Bureau of Agricultural Economics of the United States Department of Agriculture, the California State Department of Agriculture, the United States Department of Commerce, the Agricultural Legislative Committee, the Produce Exchange of Los Angeles, the Poultry Producers of Central California, the Poultry Producers of Southern California, the Poultrymen's Coöperative Milling Association (Los Angeles), the Sperry Flour Company, Albers Brothers Milling Company, Swift and Company, Armour and Company, Petaluma Egg and Poultry Company, Pacific Egg Producers, Southern Pacific Railroad, Los Angeles Chamber of Commerce, San Francisco Wholesale Dairy Produce Exchange, and Poultry Producers of San Diego.

Thanks are due G. A. Read, Field Service Department Pioneer Hatchery, Petaluma; Bert L. Smith, Assistant Farm Advisor, Oroville, Butte County; Herbert E. Barker, Itinerant Assistant Farm Advisor, Berkeley, California, J. Murray Davison, Senior student, College of Agriculture, and S. A. Mosk, Senior student, College of Commerce, for their assistance in the statistical computations for this bulletin. At the time of the preparation of the manuscript for this paper the above mentioned were advanced students in the University of California.

THE CALIFORNIA POULTRY INDUSTRY: A STATISTICAL STUDY

EDWIN C. VOORHIES*

SUMMARY

Poultry and eggs are produced in almost all parts of the civilized world. California produces approximately 4 per cent of the chicken eggs and less than 3 per cent of the chickens raised in the United States. During the past few years, and more especially during the past ten years, a number of important changes have taken place in the poultry industry. These changes are summarized in the following discussion under (1) eggs and (2) poultry. Since California produces only a small part of the nation's supply of both, it is evident that this state cannot be considered entirely separate from the nation as a whole.

(1) *Eggs.*—Eggs are the primary poultry product of California. Since egg production is increasing more rapidly in both the nation as a whole and in California than is the human population, the purchasing power of eggs has shown a marked decline. This decline has been more rapid in California than in the country at large. Until the decade 1910–1920, California was an importer of eggs. During this period egg production increased so rapidly that the state became an exporter. Indications point to the necessity of proceeding on this new basis.

Throughout the nation the production of eggs increased rapidly, largely because it was more profitable to market eggs than farm commodities in general.

The purchasing power for California eggs may continue to fall unless the product be of such a quality as to command a premium on the eastern markets.

California's poultry industry, being highly specialized, uses large amounts of concentrated feedstuffs. The poultryman is therefore interested in the relationship between egg prices and feed prices. Although feed prices have been low as compared with general commodity prices, they have advanced slightly faster than egg prices since 1910. This advance has been offset largely by the increase in the egg production per hen in this state. The California poultry industry

* Assistant Professor of Agricultural Economics and Associate Agricultural Economist in the Experiment Station.

not only pays the freight on eggs which are exported but in many instances pays freight on feedstuffs that are imported, a fact which is shown by the importation of a large percentage of the concentrated feedstuffs used. Inferior eggs cannot pay freight both ways.

California's principal outside market has been New York City, where a demand has arisen for Pacific Coast white eggs. Washington and Oregon have been California's main Pacific Coast competitors, and during the past three years especially have been increasing their offerings on this market more rapidly than has California. Other outlets for California eggs have been opened up in various eastern seaboard cities and in some of the cities of the Middle West and South. California eggs should aim to fill the premium class, as ordinary eggs are plentiful the country over, especially in the Middle West; in addition, the long haul makes it advisable to ship out only a product of high value.

Eggs from the Pacific Coast have been placed on eastern markets especially during the fall and winter months—the period of relatively high returns. Prices for California eggs are determined largely by conditions outside of the state; the more fall and winter eggs produced, therefore, the more remunerative are the returns likely to be. It is not probable that any considerable change in seasonal production will take place in the nation as a whole.

The proportion of pullet eggs to extra eggs has been increasing during the past few years. This is due to a more careful grading of eggs and perhaps to faulty feeding which often forces the young hen into early laying. A slight downward trend in the ratio of the prices of pullet eggs to extra eggs has been noticeable—a trend brought about in part perhaps by the larger proportion of pullet eggs produced.

Cold storage of eggs has been especially beneficial to California producers because processing of eggs in this state is facilitated by the concentration of the industry. Eggs are stored in the spring, during the flush season of production, thus tending to maintain prices.

(2) *Poultry for meat.*—Poultry for meat is a by-product of egg production. Chicken prices in the country as a whole have risen since 1910 more rapidly than the prices of other commodities; hence, the purchasing power has tended to advance slightly. This movement has been decidedly in the opposite direction for California, since this state specializes in the egg-laying breeds. The purchasing powers of broilers, fryers, and Leghorn hens on both the San Francisco and Los Angeles markets have declined since 1910.

In view of the favorable price obtained for the heavy breeds since the war, the question of the advisability of raising the meat breeds in this state has been raised. Attention is called to the seeming swing back to the meat breeds in parts of the Middle West. At the present time the meat birds of this country are being produced in the section of the nation where feed is abundant and where express is paid on the finished product shipped from that section. The principal source of income even in the Middle West, however, is from eggs, not meat. Whether California could compete under such conditions is, in the opinion of the writer, questionable.

Foreign demand.—Violent disturbances of the egg trade of the world were brought about by the war. On account of the increase in production in this country, exports of shell eggs have risen rather rapidly. On the other hand, the imports of egg products such as frozen eggs, etc. (p. 122), from abroad have increased during the past few years so that the nation is just about self-sufficient in its egg supply. The prospect for additional foreign markets for eggs does not look particularly favorable, as nearly all egg surplus nations are endeavoring to increase their exports. The exports and imports of poultry are of minor importance.

The present outlook does *not* justify a marked increase in the production of eggs and poultry. If the expansion of the California poultry industry is to continue, it should be directed toward a more efficient production of the highest quality eggs possible. It is doubtful whether California can compete in producing inferior eggs, if these are to be used for out-of-state shipments.

THE GENERAL SITUATION

Importance of the industry.—The production and consumption of the products of an industry determine its importance. Probably more widely engaged in than any other agricultural industry, the raising of poultry is of more direct concern to the consumer than are many other farm activities.

According to the census of 1920, poultry was raised on 90.8 per cent of the farms of the United States and poultry was reported from practically every county in the country. In addition, there are a great many back-yard flocks not reported. These must be considered along with the census figures. Although the cash returns of such individual flocks are small, the aggregate value is large. There are few other commodities so widely used in the occidental world as poultry meat and eggs.

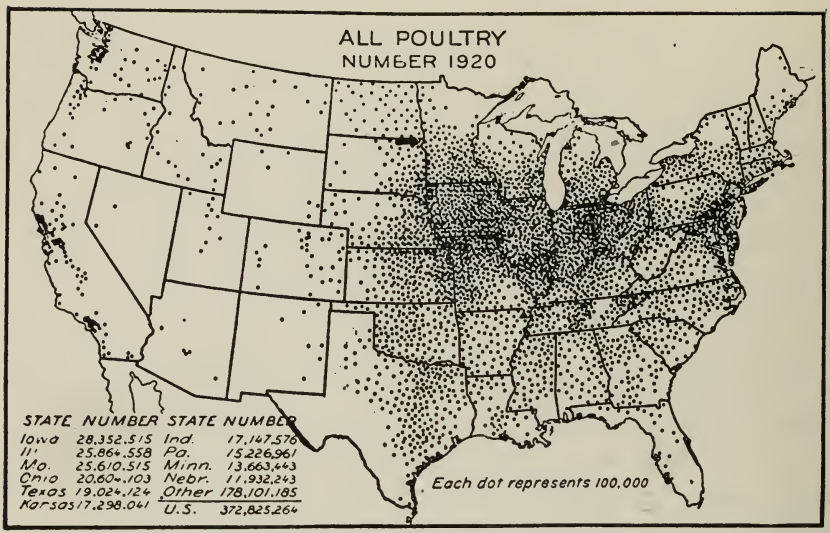

Fig. 1.—Poultry in the United States, 1920. Over 70 per cent of the poultry are in the Mississippi Valley where approximately 50 per cent of the nation's people make their homes. The northeastern section of the United States with its large industrial population is the great deficiency area of the country with respect to poultry and eggs. The number of poultry in the western states is relatively small compared with the remainder of the country, but it is of importance because of the surplus of poultry in comparison with human population. Figure used by courtesy of the U. S. D. A.

TABLE 1

CHICKENS: NUMBER ON FARMS, UNITED STATES, 1890, 1900, 1910, 1920–1925

(Thousands—i.e., 000 omitted)

	1925	1924	1923	1922	1921	1920	1910	1900	1890
United States	427,000	470,300	424,800	408,600	357,700	359,537	280,341	233,566	258,871
Geographic Divisions:									
North Atlantic	43,400	50,500	45,200	41,400	34,000	33,256	31,289	27,952	28,110
East North Central	99,400	107,400	101,100	95,200	81,500	84,516	69,471	58,104	58,930
West North Central	129,800	138,800	121,800	115,200	108,000	105,348	85,192	65,365	73,772
South Atlantic	46,000	48,700	43,600	41,700	37,800	36,408	25,627	22,294	33,774
South Central	79,800	89,200	78,500	82,500	70,400	74,011	53,671	50,300	57,110
Far Western	28,000	35,700	34,600	32,600	26,000	25,999	15,091	9,551	7,174

Sources of data: Years 1890, 1900, 1910, 1920. Dept. of Commerce, Bureau Census, Fourteenth Census, **5**: 610. (1922). Years 1921–1926 from estimates of U. S. D. A., Bureau Agricultural Economics, published in Monthly Supplement to Crops and Markets during February of each year. Figures for 1890 and 1900 are of June 1; for 1910 of April 15; for 1920–1925, of January 1. Note: The 1925 Farm Census returns are complete (November 1926) for the following divisions as of Jan. 1, 1925—North Atlantic States 42,966,993, East North Central 89,652,590, West North Central 123,076,892. Based on partial census returns, the author makes the following estimates for the remaining divisions—South Atlantic 41,600,000, South Central, 79,400,000, Far Western 33,700,000, United States total 410,300,000.

On the basis of aggregate value, poultry products ranked seventh among farm products in the United States in 1924, being exceeded by that of corn, dairy products, hay and forage crops, cotton, wheat, and swine. Their value was practically the same as that of beef cattle. The Division of Crop and Livestock Estimates of the Bureau of Agricultural Economics estimated the *farm* value of poultry raised and eggs produced for the year as $968,000,000. For 1925 it reached the sum of over one billion dollars ($1,117,000,000).*

The importance of poultry in California.—The value of the chickens raised and eggs produced in California in 1924, according to the Bureau of the Census, was $44,423,606.† This was exclusive of other poultry products which would have added considerably to the aggregate, if such had been available.

In a state with such varied production as California, it is difficult to make comparisons between the products of various agricultural industries. According to the estimates of the Bureau of Agricultural Economics and the California State Department of Agriculture on the value of crops within the state in 1924, poultry products were exceeded only by hay and forage, dairy products, grapes (including raisins). The farm value of the oranges produced was only slightly more than that of chicken eggs produced and chickens raised.

The chicken eggs produced in California accounted for over two-thirds the aggregate value of chicken products, while in the country as a whole, eggs represented 57.4 per cent of the total for all poultry products. On a relative basis, eggs are of far more importance in the poultry industry of California than they are in the nation. In 1919 (Census) California produced 3.88 per cent of all the eggs produced in the United States, but only 2.73 per cent of the chickens raised. It is interesting to note, however, that the value of eggs produced in California in 1919 ($31,420,704) accounted for 4.6 per cent of the total for chicken eggs produced in the entire nation ($661,082,083) during the same year. Indications from the preliminary data on hand are that the value of eggs produced and of chickens raised in California during 1924 will total considerably over the 1919 percentage of the total aggregate for chicken eggs produced and chickens raised in the United States.

* Information from Roy C. Potts, Bureau of Agricultural Economics, U. S. D. A.

† Final figure furnished to the author by the Bureau of the Census.

GEOGRAPHIC DISTRIBUTION OF THE POULTRY INDUSTRY

The most important chicken, egg, and meat producing territories of the United States can be divided, according to their geographical location and the character of the industry, into three fairly distinct sections.

Mississippi Valley.—The first section comprises principally the states lying in the Mississippi Valley, including Minnesota, Michigan,

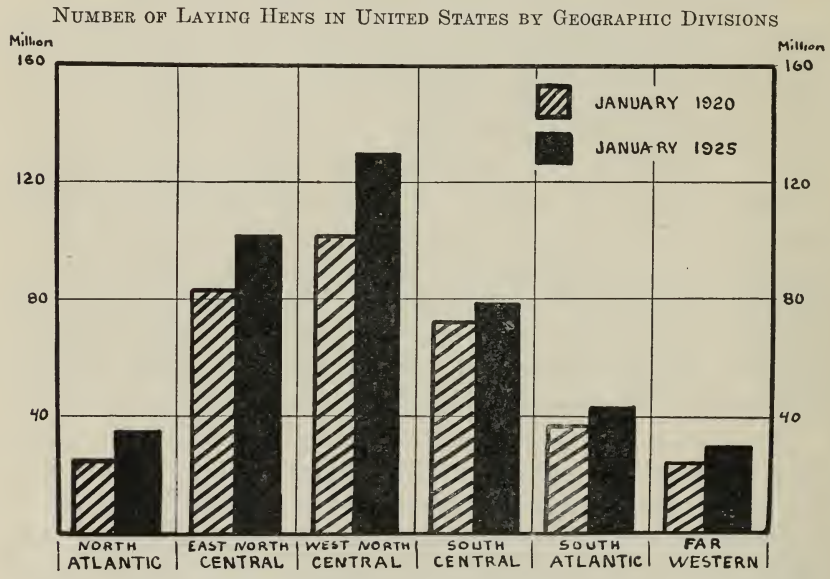

Fig. 2.—The above chart shows the number of laying hens in the United States by geographical distribution in 1920 and 1925. Numerically the increase was greatest in the Middle Western States. Relatively, the greatest increase was in the North Atlantic States, followed by the Far Western States. California is represented in the Far Western classification and has about two-fifths of the laying hens in this grouping. Data from table 1. See note under table 1.

Wisconsin, Iowa, Illinois, Indiana, Ohio, Kentucky, Missouri, Nebraska, Kansas, Oklahoma, Texas and Tennessee. According to the estimates made by the United States Department of Agriculture, the entire Mississippi Valley area contained over 72 per cent (72.3) of the chickens in the United States on January 1, 1925, while the human population made up approximately 50 per cent of the total.* The enormous quantity of eggs and poultry meat from farms in this area, especially on those of the corn belt, are produced on grain and stock farms. Up to the present time, there has not been a large number of

* Dept. Commerce, Bureau Census, Fourteenth Census, U. S., 2:31, 1922.

TABLE 2

CHICKENS: LEADING STATES IN NUMBER ON FARMS 1910 AND 1920 WITH PARTIAL STATISTICS 1925

State	Jan. 1, 1910	State	Jan. 1, 1920	Jan. 1, 1925 *
1. Iowa	22,691,641	1. Iowa	27,746,510	30,275,338
2. Illinois	20,563,850	2. Illinois	25,120,643	25,738,132
3. Missouri	19,910,221	3. Missouri	24,883,985	28,222,087
4. Ohio	16,850,099	4. Ohio	20,232,637	20,927,460
5. Kansas	15,266,241	5. Texas	18,062,744	
6. Indiana	13,216,024	6. Kansas	16,919,248	21,584,965
7. Texas	12,719,572	7. Indiana	16,754,293	17,355,369
8. Pennsylvania	11,895,903	8. Pennsylvania	14,503,468	17,306,490
9. Minnesota	10,293,843	9. Minnesota	13,212,619	16,408,080
10. New York	10,232,498	10. Nebraska	11,615,257	13,499,515
11. Michigan	9,698,401	11. Wisconsin	11,495,057	13,052,650
12. Wisconsin	9,142,719	12. Tennessee	11,353,647	
13. Nebraska	9,010,945	13. Oklahoma	11,137,259	13,023,482
14. Oklahoma	8,014,938	14. Michigan	10,913,645	13,023,482
15. Kentucky	8,000,457	15. Kentucky	10,477,598	11,035,942
16. Tennessee	7,341,469	16. California	10,426,648	12,784,512
17. California	5,665,964	17. New York	10,414,600	13,408,720

* Preliminary announcement, subject to correction.

Sources of data: Years 1910 and 1920, arranged by author from data in Dept. Commerce, Bureau Census, Fourteenth Census, U. S. **5**: 610, 1922. Year 1925 from preliminary figures furnished author by Bureau Census. Remaining data for January 1, 1925, is being compiled by Census Bureau.

TABLE 3

EGGS: LEADING STATES IN PRODUCTION 1909, 1919, WITH PARTIAL STATISTICS 1924

State	1909	State	1919	1924*
1. Missouri	110,922,159	1. Iowa	120,697,319	133,776,386
2. Iowa	108,662,882	2. Missouri	117,203,569	
3. Ohio	100,284,261	3. Illinois	105,757,907	113,020,993
4. Illinois	99,118,224	4. Ohio	102,377,143	112,893,410
5. Kansas	81,087,689	5. Indiana	83,101,293	86,974,603
6. Indiana	80,028,638	6. Kansas	76,136,616	93,144,604
7. Texas	77,377,977	7. Pennsylvania	75,998,172	102,047,724
8. Pennsylvania	73,683,489	8. Texas	70,264,074	
9. New York	71,191,449	9. California	64,123,885	99,907,325
10. Michigan	59,556,356	10. New York	62,175,172	87,167,262
11. Minnesota	53,323,702	11. Minnesota	60,249,543	76,321,570
12. Wisconsin	50,269,446			
13. Nebraska	46,460,624			
14. Oklahoma	45,356,592			
15. Kentucky	43,781,616			
16. Tennessee	41,244,285			
17. California	40,735,238			

* Preliminary announcement, subject to correction.

Sources of data: Years 1909 and 1919 arranged by author from data in Dept. Commerce, Bureau Census, Fourteenth Census, U. S. **5**: 679, 1922. Year 1924 from preliminary figures furnished author by Bureau Census. Remaining data for 1924 being compiled by Bureau Census.

specialized chicken farms, although the district produces eggs and chicken meat far in excess of the requirements of the area, so that a considerable proportion of the product must find markets elsewhere. During the past five years information received from these states indicates a development of the commercial flocks.* This apparently is true in those sections which have become largely industralized.

Northeastern States.—The second section includes Maryland, Delaware, New Jersey, Pennsylvania, New York, and the New England states. Approximately 30 per cent of the population of the United States in 1920 was in this area, while only 10.5 per cent of the chicken population was found there. Although many large and specialized poultry farms have been developed in this area, the supply of poultry products from it is wholly inadequate to meet the demand. It is this section of the country which has attracted the attention of the producers of the Pacific Coast during the past few years, the major portion of the interstate egg shipments from the Pacific Coast, therefore, has been unloaded in this area.

Pacific Coast States.—The third section comprises the Pacific Coast states of Washington, Oregon, and California. Commercial poultry farming has been developing rapidly in this section, especially since 1910, and considerable quantities of eggs are shipped annually to other sections of the United States and to foreign countries; the principal shipments being made to Atlantic Coast markets, although of late there have been shipments to cities in the Middle West and South. Washington and Oregon are the main western competitors of California in this trade. Not only are eggs from these states found in quantity on California markets, but with California, these two states furnish the bulk of the "Pacific Coast White Eggs" on the markets of the eastern seaboard.

Rocky Mountain and Southern States.—In addition to the three principal areas of chicken and egg production mentioned above, the southeastern states should be mentioned on account of the aggregate chicken population, which is comparatively high in spite of the fact that the number of chickens per farm is low. The production in several of these states does not meet the demand for poultry products.

The Rocky Mountain and southwestern states confine the chicken industry largely to flocks of relatively limited size. The states of Idaho and Utah are of interest to the California producer, as eggs from these two states are to be found not only on the California

* Source—Letters from professors of poultry husbandry in the state colleges of agriculture of the middle western states.

markets but, in addition, have recently been shipped to the markets on the eastern seaboard. Some of the remaining states in this area furnish at times a market for California eggs—Arizona, Nevada, New Mexico, Montana, Colorado. (See table 34, page 68.)

TABLE 4

Chickens: States Leading in Numbers Raised* 1909, 1919, with Partial Statistics 1924

State	1909	State	1919	1924†
1. Illinois	31,058,772	1. Iowa	31,076,091	38,184,909
2. Missouri	30,413,289	2. Illinois	29,893,565	32,203,811
3. Iowa	28,970,482	3. Missouri	29,363,102	
4. Texas	23,860,411	4. Texas	25,829,724	
5. Kansas	23,845,961	5. Indiana	22,618,296	25,256,884
6. Ohio	22,776,881	6. Kansas	22,502,600	29,064,067
7. Indiana	22,098,966	7. Ohio	22,458,227	
8. Kentucky	17,572,773	8. Oklahoma	16,817,261	19,670,036
9. Pennsylvania	16,348,429	9. Nebraska	15,796,750	20,310,433
10. Tennessee	15,865,254	10. Pennsylvania	15,663,745	
11. Oklahoma	15,336,955	11. Tennessee	15,554,496	
12. Virginia	15,182,753	12. Kentucky	15,506,845	
13. Nebraska	14,724,281	13. Minnesota	15,062,386	20,352,255
14. North Carolina	13,765,827	14. Georgia	14,588,012	
15. Georgia	13,706,397	15. Virginia	14,227,483	
16. New York	13,393,599	16. North Carolina	14,047,006	
17. Michigan	12,529,844	17. California	12,929,044	14,382,861
18. Minnesota	11,412,001	18. Michigan	12,441,555	15,275,548
19. Alabama	11,382,815			
20. Mississippi	10,862,870			
21. Wisconsin	10,431,235			
22. Arkansas	9,673,838			
23. South Carolina	8,062,383			
24. California	7,849,231			

* Chickens raised to marketable age, does not include baby chicks.
† Preliminary announcement, subject to correction.
Sources of data: Years 1909 and 1919 arranged by author from data in Dept. Commerce, Bureau Census, Fourteenth Census, U. S. **5**: 682, 1922. Year 1924 from preliminary figures furnished author by Bureau Census. Remaining data for 1924 being compiled by Bureau Census.

For the census and for purposes of estimation, the country is often divided into the North Atlantic, East North Central, West North Central, South Atlantic, South Central, and Far Western states. Yearly estimates are now made for each of these regions on the chickens on hand January 1, together with the number and value of chickens and chicken eggs produced. (Table 1, page 6.)

DEVELOPMENT OF THE POULTRY INDUSTRY

United States.—The chicken industry of the United States has grown markedly since the first census of the poultry industry was taken in 1880. The number of chickens increased far more rapidly

COMPARISON OF INCREASE IN HUMAN POPULATION, CHICKENS RAISED, AND EGGS PRODUCED IN THE UNITED STATES, 1880–1925

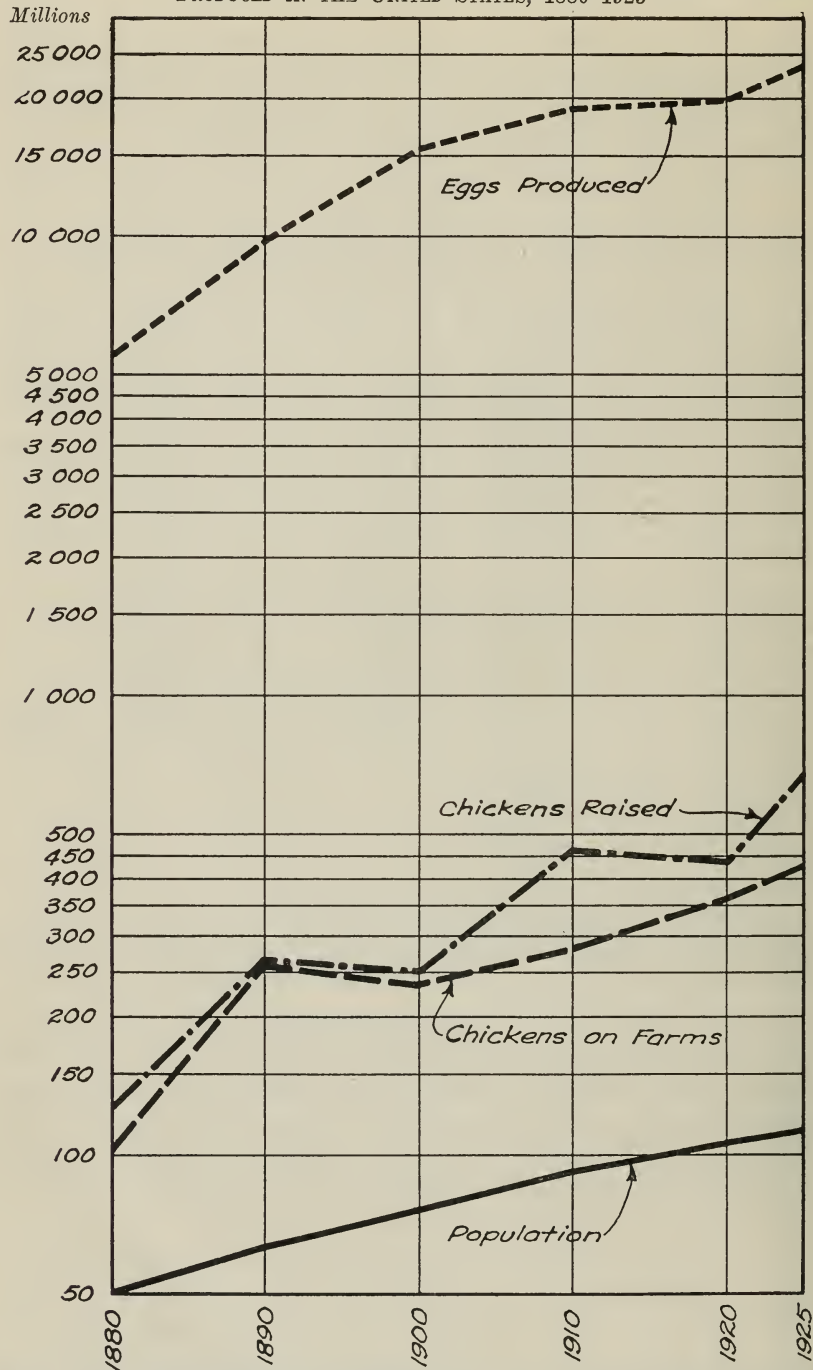

Fig. 3.—Since 1880 population has slightly more than doubled, while poultry and egg production is over four times that of 1880. Data from table 5, p. 13.

than population from 1880 to 1890; while during the next decade, 1890–1900, an actual decrease was registered. From 1900 to 1920, and especially from 1910–1920, the number increased more rapidly than did the population. From January 1, 1920, to January 1, 1925, estimates* show an increase of 19 per cent (18.75) in the chicken population of the entire country, while the human population shows an increase of only 9 per cent (9.15) between January 1, 1920, and July 1, 1925. Later estimates based on partial census returns indicate

TABLE 5

Human Population, Chickens, and Chicken Products, United States 1880, 1890, 1900, 1910, 1920, 1925. Actual and Relative Statistics of Human Population, Chickens on Farms, Chickens Raised, and Eggs Produced

Year	*Eggs produced	*Chickens raised	Chickens on farms	Population United States	Relative numbers (1880=100)			
					Eggs produced	Chickens raised	Chickens on farms	Population United States
	Thousands	*Thousands*	*Thousands*	*Thousands*	*Per cent*	*Per cent*	*Per cent*	*Per cent*
1880 (June 1)	5,482,931	125,507	102,272	50,156	100.00	100.00	100.00	100.00
1890 (June 1)	9,836,675	285,609	258,871	62,948	179.41	227.56	253.12	125.50
1900 (June 1)	15,523,949	250,624	233,566	75,995	283.13	199.69	228.38	151.52
1910 (Apr. 15)	18,899,753	460,611	280,341	91,972	344.70	367.00	274.11	183.37
1920 (Jan. 1)	19,848,539	437,302	359,537	105,711	362.01	377.11	351.55	210.76
1925 (Jan. 1)	23,619,312	678,300	427,000	112,786	430.78	540.45	417.50	224.87

Source: Pierce, Howard C. The Poultry and Egg Industry of Europe, U. S. D. A. Bull. 1385: 2. 1926.

* Production figures are for the preceding year.

that the percentage increase in chicken population 1920–1925 was approximately 15 per cent. See table 1, p. 6. The chicken population during the five years, 1920–1925, has therefore increased far more than the human population. The estimate for the number of hens and pullets of laying age on farms for January 1, 1926, was about 4.7 per cent greater than for January 1, 1925, according to reports received by the United States Department of Agriculture from about 45,000 farmers representing all parts of the United States.†

The rate of increase in poultry has been greater since 1880 than for any other kind of livestock, being most nearly approached by dairy cattle. It might be added that numbers alone do not depict the poultry industry today as compared with a decade or even four

* Crops and Markets, Supplement 3:82, March, 1926.

† Crops and Markets, Supplement 3:82, March, 1926.

decades ago. It is estimated that the hen of today in certain sections of the country is more efficient than she was in 1900. This statement would doubtless also hold for all classes of livestock.

The growth in the chicken population of the far western states was relatively greater from 1890 to 1920 than that of the other geographical divisions of the country. From 1920 to 1925 the greatest relative growth in chicken population was in the North Atlantic States, followed by the Far Western States. The greatest numerical

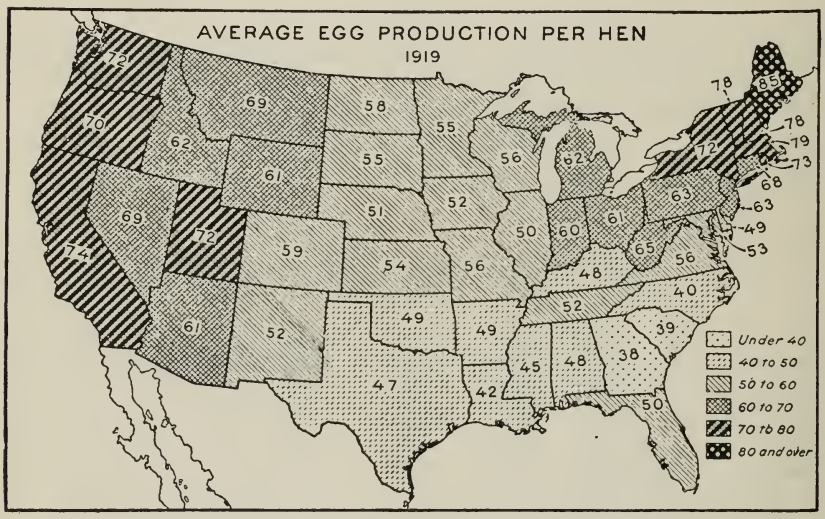

Fig. 4.—The average egg production per hen in 1919 was lowest in the Southern States. Production varied from 38.5 eggs in Georgia to 85.3 per hen in Maine. Excluding chickens which were not layers, the average production per layer was about 77 eggs. It is probable that the number of eggs reported to the census enumerator in the winter of 1920 as produced by the farm flock in 1919 is less than the actual production because of a lack of records, and of a tendency on the part of some to judge by the number of eggs being laid at the time of the year the census was taken, when production was at the low point of the year. It will be noted that California is among the high states. The census of 1925 indicates that the average for California is approximately 92 eggs per hen. This latter figure has been computed by dividing the 1924 production by the number of chickens on hand, January 1, 1925. No correction is made for males. Data from table 115, p. 166. Photo from U. S. D. A. Yearbook 1924, p. 402.

growth was in the Middle West (fig. 2). From January 1, 1925, to January 1, 1926, estimates of the Bureau of Agricultural Economics indicate an increase of 14 per cent in hens and pullets in the western states, about 6 per cent in the north central states, and 4 per cent in the south central states, while the south Atlantic and the north Atlantic states show a decrease of 1 per cent and 2 per cent, respectively.

Statistics of egg production indicate a substantial increase for the country during each decade for which figures are available. From 1880 to 1890 the increase was 80 per cent; 1890 to 1900, 50 per cent; 1900 to 1910, 25 per cent; and 5 per cent from 1910 to 1920. Egg production per capita also increased from 1880 to 1910 but decreased slightly between 1910 and 1920. In 1880 the per capita production in dozens was 9.00; 1890, 13.09; 1900, 16.96; 1910, 17.30; and in 1920, 15.65.* If estimates of both egg production (Bureau of Agricultural Economics) and population (Bureau of the Census) were used for 1925 the per capita production would be between 17 and 18 dozen.

California.—The increase in the number of chickens in California was especially marked during the decades 1880 to 1890 and 1910 to 1920, the growth during the latter decade being the greatest since census enumerations have been taken. During these two decades, the increase was far greater than the increase in human population. It was during 1910 to 1920 that the state began to ship eggs in large quantities to the eastern seaboard, thus becoming an exporter rather than an importer. According to the 1925 farm census the increase in the number of chickens from 1920 to 1925, was 22.6 per cent or approximately the same as that of the human population for this period. The rate in the increase of chickens has been greater than for any other class of livestock, being most nearly approached by dairy cattle.

The 1925 farm census showed that one-fourth of all the chickens in the state were in Sonoma County, popularly referred to as the Petaluma district. The largest percentage increases during the period 1920 to 1925 have been in certain coast counties and in a number of interior counties—Riverside, San Bernardino, Sacramento. (See table 108, p. 160.) Private estimates of the number of chickens on hand in California on January 1, 1925, range from 15,000,000 to 18,000,000. The lower estimate is based upon a carefully revised mailing list of 50,000 poultrymen kept by a large feed concern in California. The list contains no names of poultrymen having less than 150 hens. The 1925 Farm Census did not enumerate the chickens within certain city limits where many flocks in this state are found.

The production of eggs in California shows even a greater growth than the number of chickens since 1880 (table 6, p. 17). The production of eggs per hen has increased. In 1910 the production per hen was 87 eggs, although in 1920 the average production had dropped to 74 eggs. This drop might have been expected owing to the marked

*Yearbook of the Department of Agriculture 1924, p. 388.

increase in the number of poultry. In very few of the animal industries is a rapid expansion accompanied by the exercise of the greatest care in breeding. In 1925 the average production was 92 eggs per hen.

CHICKENS IN CALIFORNIA, 1925

Fig. 5.—There is a concentration of chickens in Sonoma, Alameda, Santa Cruz, Los Angeles and San Diego counties. The beginnings of a considerable concentration in several Sacramento and San Joaquin valley sections and in Riverside and San Bernardino counties can be discerned. One dot equals 10,000 chickens.

These figures are only approximate—the 1925 figure being obtained by dividing the number of eggs produced during 1924 by the number of hens on hand January 1, 1925 (table 6, p. 17). While these statistics are satisfactory for purposes of comparison the writer esti-

mates that the number of eggs produced per layer in 1924 was between 120 and 132. This estimate is based upon the conservative statements of poultrymen in various sections of the state.

The production of eggs per capita in California increased from approximately 6.7 dozens in 1880 to 16.5 dozens in 1900. In 1920 it amounted to 18.7 dozens, while in 1925 it was between 22 and 23 dozens, or 5 or 6 dozen more per capita than the average for the United States.

TABLE 6

Actual and Relative Statistics of Chickens, Livestock and Human Population, California, 1880–1925

(Thousands—i.e., 000 omitted)

Year	Dozen Eggs produced	Chickens raised	Chickens on farms	All cattle	Dairy cattle	Swine	Sheep	Human population
1880 (June 1)	5,771	.....	1,426	815	210	868	5,727	865
1890 (June 1)	13,679	.....	3,504	1,608	317	594	3,373	1,213
1900 (June 1)	24,444	.....	3,947	1,445	307	598	2,563	1,485
1910 (Apr. 15)	40,735	7,849	5,666	2,077	382	767	2,417	2,378
1920 (Jan. 1)	64,124	12,929	10,427	2,008	502	909	2,400	3,426
1925 (Jan. 1)	97,907	14,383	12,785	1,918	557	431	3,045	4,180
	Relative numbers (1880=100)							
1880	100	.....	100	100	100	100	100	100
1890	237	.....	246	197	151	68	59	140
1900	424	.....	277	177	146	69	45	172
1910	706	.....	397	255	182	88	42	275
1920	1,111	.....	731	246	239	105	42	396
1925	1,696	.....	897	235	265	50	53	483

Sources of data: Eggs produced and chickens raised—data for years previous to those listed, e.g., 1879, 1889, etc., 1879–1919, Bureau of Census, 14th Census **5**, pp. 682, 685. 1925, Bureau of Census, U. S. Census of Agriculture, 1925, Cal. p. 7. Chickens on Farms, 1880, 10th Census, **3**, p. 250; 1890-1920, 14th Census **5**, p. 610; 1925, U. S. Census Agriculture, 1925, Cal. p. 7. All Cattle, 1880-1920, 14th Census **5**, p. 572; 1925, U. S. Census Agriculture, 1925, Cal. p. 7. Note that all cattle includes Dairy Cows and Heifers over 2 years. Figures for censuses prior to 1900 were nominally exclusive of calves. Dairy Cattle, 1880–1920, 14th Census **5**, p. 573; 1925, U. S. Census Agriculture, 1925, Cal. p. 7. Swine, 1880–1920, 14th Census **5**, p. 598; 1925, U. S. Census Agriculture, 1925, Cal. p. 7. Sheep, 1880–1920, 14th Census **5**, p. 586; 1925, U. S. Census Agriculture 1925, Cal. p. 7. Human Population, 1880–1920, 14th Census **1**, p. 95; 1925, Estimate furnished author by Bureau of Census. Relative numbers computed by author.

A comparison of egg production per hen in California and in other states in 1920 is made in figure 4, p. 14. California reported not only a large number of poultry of all descriptions per farm, but a relatively larger number of chickens than most other states. Since California is a state of specialized agriculture, it will be found that in comparing the number of chickens per farm on only those farms reporting chickens, California stands second to Iowa. Farms in California reporting chickens showed 113 chickens per farm in comparison with

COMPARISON OF INCREASE IN HUMAN POPULATION, CHICKENS ON FARMS AND EGGS PRODUCED, CALIFORNIA, 1880–1925

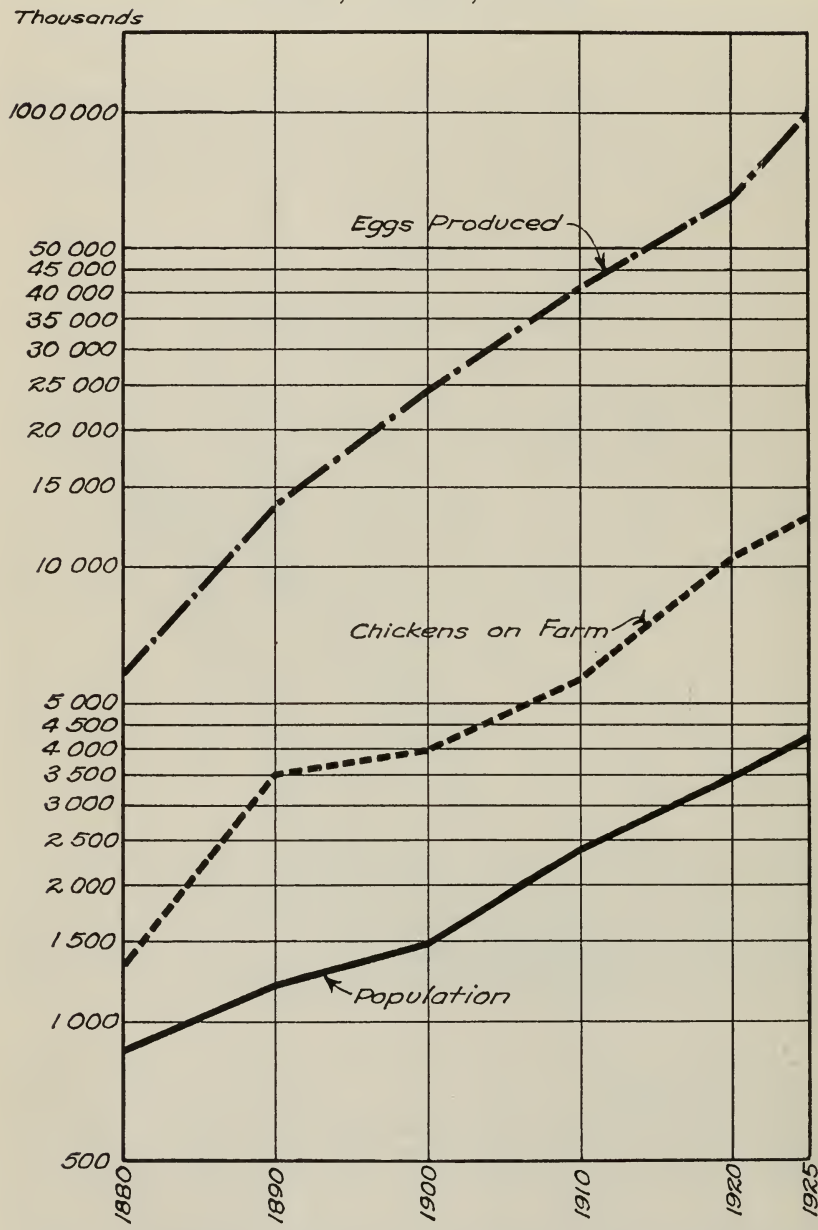

Fig. 6.—Since 1880 California's human population has increased slightly under five times (1926—5 times), while the chickens on farms have increased almost nine times and the eggs produced have increased almost seventeen times. Data from table 6, p. 17. (Eggs in dozens.)

62 for the country as a whole.* Although a production of only 74 eggs per chicken was reported for 1920, this was high in comparison with the production of other states, California being exceeded only by the four New England States of Maine, Massachusetts, New Hampshire, and Vermont—all with small chicken populations. California outranked all other states in the number of eggs laid per farm during 1919 on account of both the large number of chickens per farm and the high egg production per hen. Partial returns from the 1925 Farm Census indicate that at present California is second only to Washington in the number of eggs per hen. (Table 106, p. 157.) Of great interest in this connection is the inquiry which the United States Department of Agriculture is conducting annually on records of egg production in all parts of the United States (table 115, p. 166). Returns for California for 1925 in this preliminary study indicate that of the 22,000 farms in the country reporting, those in California had a production of 197 eggs per hen—a record closely approached by Washington and New Hampshire, each with 188 eggs per hen. These figures are over twice as large as those reported by calculations based upon the census. It should be emphasized that the returns are from only a few farms and the number of eggs per hen is undoubtedly too high. While the number of farms reporting for California in this inquiry evidently is small (22,000 for the entire country), the average percentage production per month in the different states should be of interest, and with additional information, this work should prove of great value. The Western States enjoy a decided advantage over the United States as a whole in that a greater percentage of eggs is laid during the months from August to February, inclusive, than in the United States as a whole. This statement is also true for California in this inquiry, except during January.

Trend toward egg breeds in the middle west.†—During the past decade there has been a trend toward the strictly egg-laying breeds, notably the White Leghorn, and away from the heavier dual purpose breeds in those sections of the Mississippi Valley in which commercial or semi-commercial flocks of five hundred or more birds have been developed. In some sections a scarcity of good stock has hastened the trend toward the egg breeds. At the present time there seems to be on the farms in many sections of the Mississippi Valley a tendency to swing back toward the heavier breeds, a change which has been

* Computations by author based on Department of Commerce, Bureau Census, Fourteenth Census, U. S. 5:681, 1922.

† Information obtained by author from professors of poultry husbandry in Middle Western States.

brought about by the comparatively low prices offered for Leghorn hens and broilers.

The American breeds are probably still preferred for small farm-flocks; and most brown eggs will continue to be the small farm-flock product, while most white eggs will come from the hennery. For this reason many believe the white eggs found in our eastern markets are usually superior to the browns. If this be true, the preference for white eggs should gradually increase and the average price for white eggs should continue to rise.

TABLE 7

POULTRY: AVERAGE NUMBER OF PRINCIPAL KINDS PER FARM BY GEOGRAPHIC DIVISIONS, UNITED STATES, 1910, 1920

Division	Average number per farm reporting									
	All fowls		Chickens		Turkeys		Ducks		Geese	
	1920	1910	1920	1910	1920	1910	1920	1910	1920	1910
United States	64	53	62	50	5	4	6	6	6	7
New England	46	47	45	46	6	4	10	7	4	6
Middle Atlantic	73	61	70	57	5	4	8	8	4	4
East North Central	85	69	83	66	5	4	6	5	5	5
West North Central	106	88	103	85	6	5	6	5	5	5
South Atlantic	37	29	35	26	5	4	6	6	7	8
East South Central	38	30	36	27	4	4	6	6	7	9
West South Central	47	39	45	36	6	5	6	6	7	9
Mountain	50	45	48	43	6	5	5	5	4	5
Pacific	88	69	86	65	9	8	9	8	4	5

Source: Dept. Commerce, Bureau Census, Fourteenth Census U. S. **5**: 608, 1922.

Poultry other than chickens.—Compared with chickens, turkeys, ducks, and geese are relatively unimportant in the United States. There was a decline in numbers in all three of these classes of poultry in the United States and in California from 1890 to 1920.

The average number per farm of the principal kinds of fowls and the per cent distribution varies considerably for different sections of the country.

PRICES AND PURCHASING POWER OF EGGS

Egg prices and general commodity prices, United States.—High prices for eggs do not necessarily mean prosperity, nor low prices unprofitableness for the egg producer. If the prices received for eggs are high compared to the things the egg producer must buy, the poultryman is prosperous; if they are low compared with the things he must buy, he is not prosperous. Consequently, a comparison of

the money prices of eggs and poultry and of the money prices of other commodities is of interest and value.

Figure 7 shows comparisons between the relative farm prices received in the United States for eggs and for all commodities, together with the "purchasing power" of eggs. This comparison is termed "purchasing power."

TABLE 8

Poultry: Per cent Distribution of Different Kinds by Geographic Divisions, United States, 1920

Division	All fowls	Chickens	Turkeys	Ducks	Geese	Guinea fowls	Pigeons
United States	100.0	100.0	100.0	100.0	100.0	100.0	100.0
New England	1.6	1.61	.59	2.37	.64	.61	1.88
Middle Atlantic	7.69	7.64	4.22	13.88	3.44	10.49	20.18
East North Central	23.22	23.51	11.78	21.11	18.44	11.93	12.97
West North Central	29.08	29.30	23.70	28.95	27.17	12.74	20.39
South Atlantic	10.32	10.13	15.16	10.19	13.36	27.03	12.64
East South Central	9.61	9.48	11.82	10.18	17.20	17.44	5.88
West South Central	11.28	11.10	21.52	8.00	16.77	18.37	12.37
Mountain	2.65	2.65	4.77	1.96	1.60	.73	4.31
Pacific	4.56	4.58	6.44	3.36	1.38	.65	9.38

Source: Dept. Commerce, Bureau Census, Fourteenth Census, U. S. **5**: 608. 1922.

TABLE 9

Poultry: Number of Turkeys, Ducks and Geese, United States and California, 1890, 1900, 1910, and 1920

Year	United States			California		
	Turkeys	Ducks	Geese	Turkeys	Ducks	Geese
1890	10,754,060	7,544,080	8,440,175	287,799	157,514	37,659
1900	6,594,695	4,785,850	5,676,788	158,356	62,293	28,419
1910	3,688,708	2,906,525	4,431,980	116,602	40,061	14,195
1920	3,627,028	2,817,624	3,939,203	174,708	64,792	14,912
Approximate decline	66%	63%	53%	40%	58%	60%

Source of data: Dept. Commerce, Bureau Census, Fourteenth Census, U. S. **5**: 611. 1922.

The index of wholesale prices compiled by the United States Bureau of Labor Statistics is used in converting prices of eggs to purchasing power. This index is now based upon the prices of 404 commodities. The purchasing power of eggs, therefore, indicates the value of eggs in exchange for all commodities, making up the commodity index of the United States Bureau of Labor Statistics at wholesale prices compared with pre-war exchange values.

RELATIVE FARM PRICES OF EGGS COMPARED WITH "ALL COMMODITY INDEX," UNITED STATES, 1910–1925

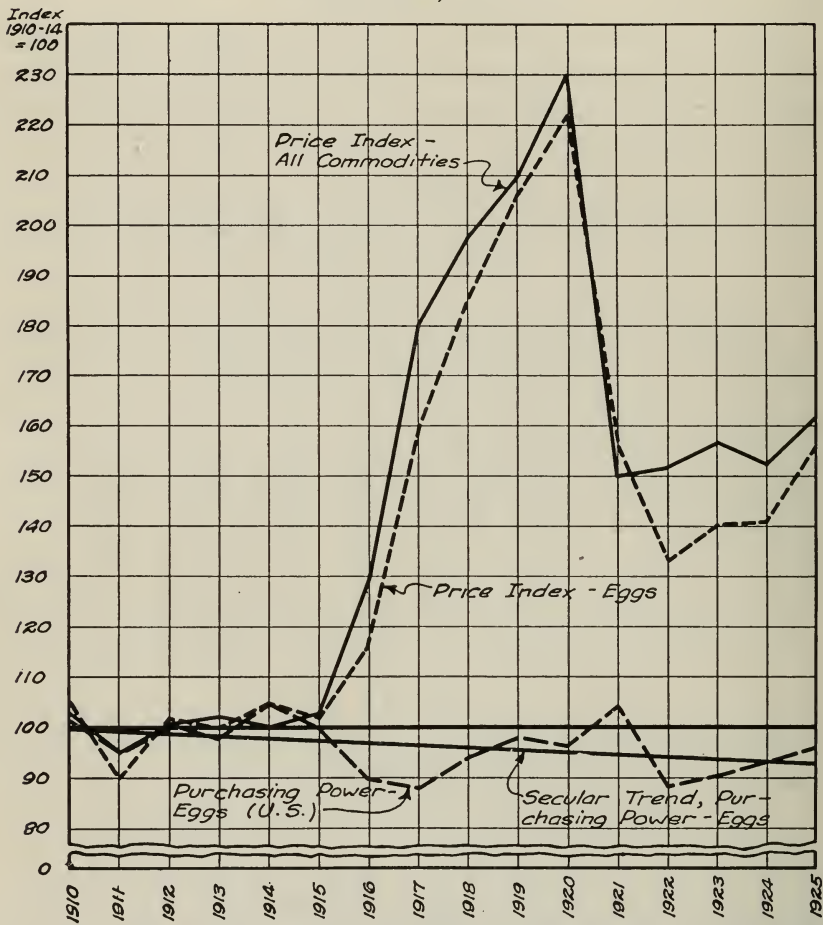

Fig. 7.—From 1910 to 1915 the price indices for eggs and all commodities were approximately the same. In 1916 the "All Commodity Index" began to advance more rapidly than the "Egg Price Index." The "All Commodity Index" remained above the "Egg Index" until 1921, when all commodities declined to a lower point than eggs. In 1922, however, eggs fell far below all commodities. This figure applies to the United States as a whole and not to California.* For California see figures 9 and 12. Data from table 10, p. 23.

The purchasing power is often calculated by a comparison with non-agricultural commodities on the assumption that farmers exchange their products more generally for non-agricultural commodities than for "all commodities," as used in this publication. The poultryman, however, in California is a purchaser of agricultural as well as non-agricultural products. Owing to the intense specialization in the

* Equation for the line of trend is $y = 96.1 - .24\,x$, origin January 1, 1918.

poultry districts of the state, the specialized poultryman is perhaps more interested in the prices of agricultural commodities, such as feed, than he is in the prices of non-agricultural commodities. Standards of living are constantly changing. Expenditures are different today than they were five, ten or fifteen years ago. Too much stress should not be placed upon purchasing power as the "All Commodity Index"

TABLE 10

Eggs: Relative Wholesale Prices and Purchasing Power of Eggs, United States, 1910–1925

Year	Actual price (cents per dozen)	Relative price	All Commodity Index	Purchasing power
	I	II	III	IV
1910	22.6	105	102.7	102
1911	19.4	90	94.7	95
1912	21.9	102	100.9	101
1913	21.5	100	101.8	98
1914	22.6	105	99.9	105
1915	21.9	102	102.6	100
1916	24.9	116	129.0	90
1917	34.2	159	180.3	88
1918	40.0	186	197.7	94
1919	44.3	206	210.1	98
1920	47.7	222	230.2	96
1921	33.3	155	149.6	104
1922	28.6	133	151.5	88
1923	30.1	140	156.5	90
1924	30.3	141	152.4	93
1925	33.5	156	162.0	96

Sources of data: Columns I and II, computed from the Monthly Supplements to Crops and Markets, U. S. D. A., Bureau Agricultural Economics. The relative price is in this case obtained by dividing the actual price for each year by the average (arithmetical mean) of the prices for the five years 1910-1914. The average of the prices 1910-1914 is 21.6 cents. The relative price for 1910 is, therefore, 22.6÷21.6=105: 1911, 19.4÷21.4=90, etc.

Column III—Bureau of Labor Statistics index converted to a 5-year base (1910-14), published in the Supplement to the Agricultural Situation, B. A. E., June 1925, 54-62.

Column IV—Computations by author. The purchasing power is found by dividing the "relative price" by the "All Commodity Index."

Current monthly statistics can be found in the Monthly Supplement to Crops and Markets, published by the Bureau of Agricultural Econonmics.

does not take into consideration many manufactured articles which have been actually cheapened by mass production. In conjunction with purchasing power the egg-feed price ratio should be consulted p. 36.

Two types of changes are apparent in each of the curves in figure 7, (1) a long-time movement, and (2) short-time fluctuations. (1) Long-time changes are known as secular trends. "The secular trend is that part of the fluctuation which is due to the gradual and persistent tendency to change which exists for an interval of several years, an interval the definite length of which cannot be assigned but which may

RELATIVE PRICES AND PURCHASING POWER OF EGGS AND AGRICULTURAL COMMODITIES, UNITED STATES, 1910–1925

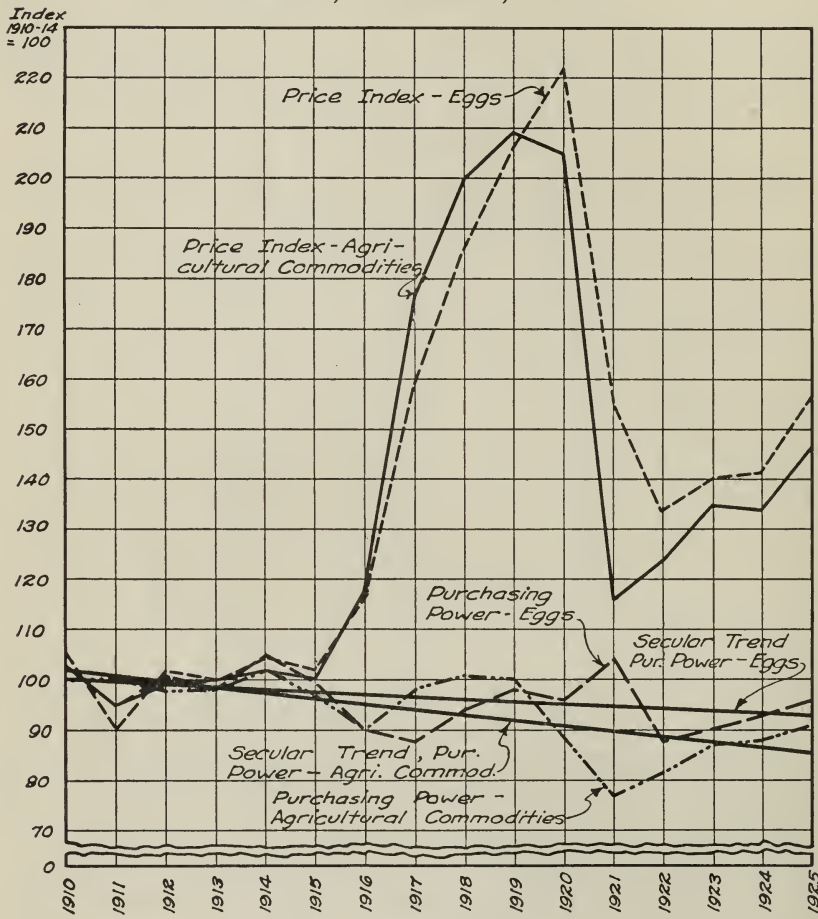

Fig. 8.—Between 1910 and 1915 the price index for eggs and the price index for agricultural commodities in the United States ran almost parallel. From 1916 to 1919 the prices of agricultural commodities in the country as a whole were relatively higher than the prices for eggs. Since 1920 relative prices for eggs have been higher than relative prices for agricultural commodities in general and farmers have increased their poultry flocks. The downward trend in the purchasing power of eggs has been less rapid than the downward trend in the purchasing power of other agricultural commodities. Figure 8 should be viewed in connection with figure 38, page 93, giving the price indices for chickens in the country.* (Table 50, page 92). Data from table 10, and Bureau of Agricultural Economics.

* Equation for the line of trend of purchasing power of eggs is $y = 96.1 - .24\,x$ origin January 1, 1918. Equation for the line of trend of purchasing power of all commodities is $y = 93.6 - .55\,x$, origin January 1, 1918.

extend over a generation and sometimes for a longer period.''* The causes of the secular trend are those which operate persistently year after year, such as increase in population, consumption and standards of living. (2) About the secular trend are cyclical fluctuations, which in the case of eggs, are rather irregular. In times of small profits,

Relative Prices and Purchasing Power of Eggs, San Francisco, 1890–1925

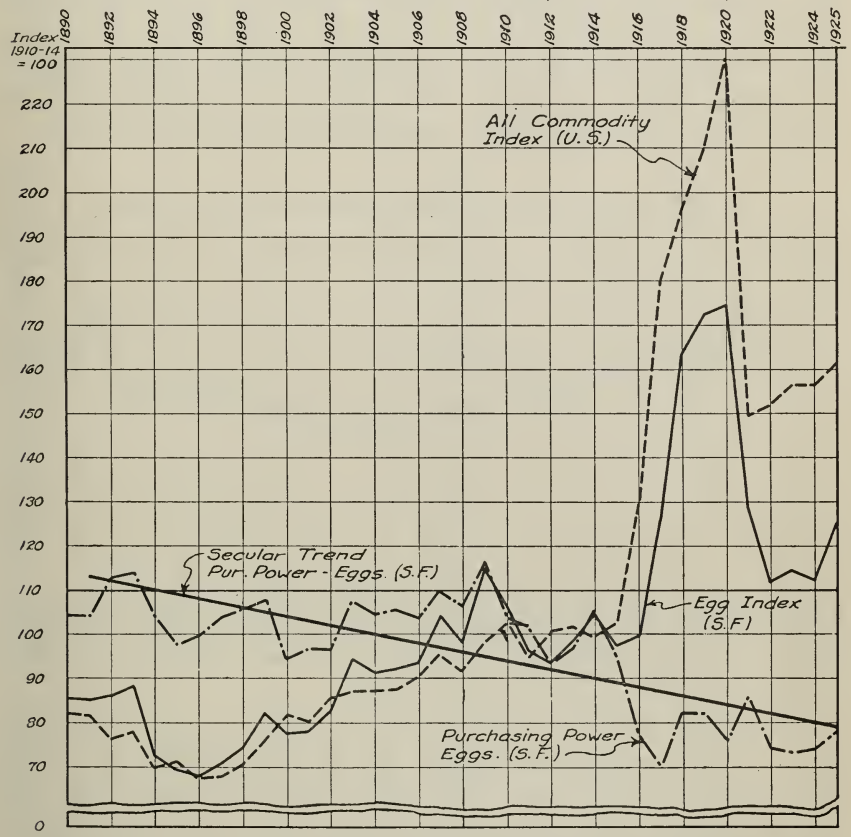

Fig. 9.—The period 1890–1914 shows a purchasing power favorable to the poultryman. In spite of the rise in the price of eggs from 1916 to 1920, the prices of all commodities increased even more rapidly, with a lower purchasing power as a result. 1925 showed not only an increase in price but an increase in purchasing power.† Data from table 11, p. 27.

decreased production has usually resulted, flocks have been cut down, and under-production has been brought about. If eggs are relatively high in price, chickens are raised in too large numbers, and consequently prices begin to fall as soon as there are too many laying hens.

* Crum, W. L., and A. C. Patton. An introduction to the methods of economic statistics, 302–303, 1925.

† Equation for the line of trend is $y = 96.1 - 1.005\,x$, origin 1908.

From 1910 to 1915 (fig. 7) there is a close correlation between the purchasing power of eggs and that of "All Commodities" in the United States. In 1916 "All Commodity" prices advanced more rapidly than egg prices and this lead was maintained until 1921 when the purchasing power of eggs exceeded 100 per cent (104) of the 1910–1914 average. In 1922, the purchasing power of eggs was at a disadvantage to the poultryman (88). The improvement has been marked since 1922, 1925 being only slightly under 100 per cent (96). Since 1910, in spite of the peak in 1921, the trend has been downward, the decline during the period 1910–1925 in the purchasing power being 7.2 per cent (trend values) on the basis of 1910–1914 average.

San Francisco Wholesale Quotations of Eggs, 1860–1925

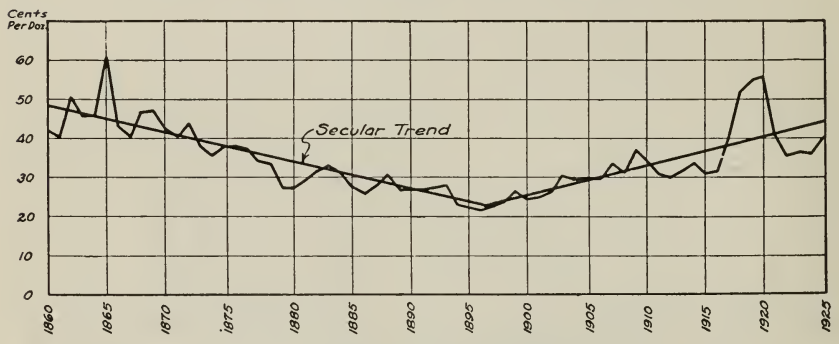

Fig. 10.—Two long time movements in egg prices have been evident on the San Francisco market. A pronounced decline took place from 1860–1897. Since 1897 there has been an upward trend in prices. The peaks do not necessarily mean prosperity for the poultryman. This figure should be consulted in connection with figure 9, p. 25.* Data from table 11, p. 27.

Purchasing power of eggs, California.—The wholesale prices of eggs on the San Francisco market are plotted in figure 10, p. 26, while actual wholesale farm prices (B. A. E.) were used in the discussion with reference to the United States as a whole. There is in California a high degree of correlation between the wholesale price and the price received by the producer shipping his products to the main markets. Two long-time movements are perceptible on the San Francisco market, 1860 to 1896 and 1896 to 1925 (fig. 10). Wholesale prices previous to 1860 are not obtainable. The total decline for the period 1860 to 1896 was 55.23 per cent while the increase from 1896 to 1925 has been 93 per cent (trend values).

* Equation for line of trend 1860–1896 is $y = 35.17 - .746\,x$, origin 1878. Equation for line of trend 1896–1925 is $y = 33.43 + .366\,x$, origin January 1, 1911.

Figure 11 shows the purchasing power of eggs in San Francisco based upon a 1910–1914 average for both egg quotations and all commodities.

TABLE 11

Eggs: Actual and Relative Wholesale Prices, Purchasing Power, San Francisco, 1860–1925

Year	Actual average price	Relative price	Purchasing power	Year	Actual average price	Relative price	Purchasing power
	I	II	III		I	II	III
1860	42.0	132	148	1893	28.3	88.9	114
1861	40.5	127	141	1894	23.1	72.6	104
1862	50.2	158	150	1895	22.2	69.7	98
1863	46.7	147	111	1896	21.7	68.2	100
1864	46.2	145	85	1897	22.6	71.0	104
1865	61.0	192	99	1898	23.8	74.8	106
1866	43.3	136	80	1899	26.2	82.3	108
1867	39.6	124	81	1900	24.8	77.9	95
1868	46.7	147	103	1901	24.9	78.2	97
1869	46.9	147	107	1902	26.4	82.9	97
1870	42.4	133	105	1903	30.1	94.5	108
1871	40.3	127	104	1904	29.2	91.7	105
1872	44.0	138	111	1905	29.5	92.7	106
1873	37.9	119	97	1906	29.8	93.6	104
1874	35.8	112	94	1907	33.4	104.9	110
1875	38.0	119	104	1908	31.3	98.3	107
1876	37.1	116	109	1909	36.6	115.0	117
1877	34.1	107	108	1910	33.8	106.2	103
1878	33.4	105	115	1911	30.7	96.4	102
1879	27.3	86	100	1912	29.9	93.9	93
1880	27.4	86	90	1913	31.5	98.9	97
1881	29.1	91	97	1914	33.3	104.6	105
1882	31.4	99	102	1915	30.9	97.1	95
1883	32.9	103	109	1916	31.7	99.6	77
1884	31.1	98	110	1917	39.9	125.3	70
1885	27.6	87	105	1918	51.9	163.0	82
1886	26.1	82	100	1919	54.9	172.4	82
1887	28.0	88	106	1920	55.7	174.9	76
1888	30.6	96	114	1921	40.8	128.1	86
1889	26.9	85	101	1922	35.5	111 5	74
1890	27.2	85.4	104	1923	36.4	114.3	73
1891	27.1	85.1	104	1924	35.9	112.8	74
1892	27.4	86.1	113	1925	39.8	125.0	78

Sources of data: Column I. Computed by author on average of monthly net wholesale quotations. Monthly quotations computed by taking arithmetic mean of Wednesday quotations for each month. Original quotations obtained from California Farmer 1854–1870, Pacific Rural Press, 1871–1926. The author has computed the net quotations as discounts were applicable to the quotations published between Jan. 1, 1918 and Dec. 31, 1925. Column II. Computations by the author. Base 1910-1914=31.84 cents equals 100. Column III. Computations by author based on Relative Prices of Eggs and Relative Prices of All Commodities (Bureau of Labor Statistics).

The general tendency has been for eggs to be higher in price than "all commodities," when referring both to the base period 1910–1914. California had an import rather than an export balance in eggs, as it has been exporting them only for the past decade or two. The results as shown in figure 11 might thus be expected.

Since 1914, "All Commodities" have been relatively higher than eggs on either the San Francisco or the Los Angeles markets (figs. 9, and 12)—this in common with the trend in the United States as a whole. If, however, the purchasing power of eggs on California markets is compared with that on eastern markets, California is at a disadvantage, for it has become a surplus instead of a deficiency state with reference to eggs. Until 1915, quotations on the San Francisco and Los Angeles markets were relatively higher than those on other large markets of the country (tables 111, p. 163, and 112, p. 164 for

PURCHASING POWER OF EGGS, SAN FRANCISCO, 1860–1925

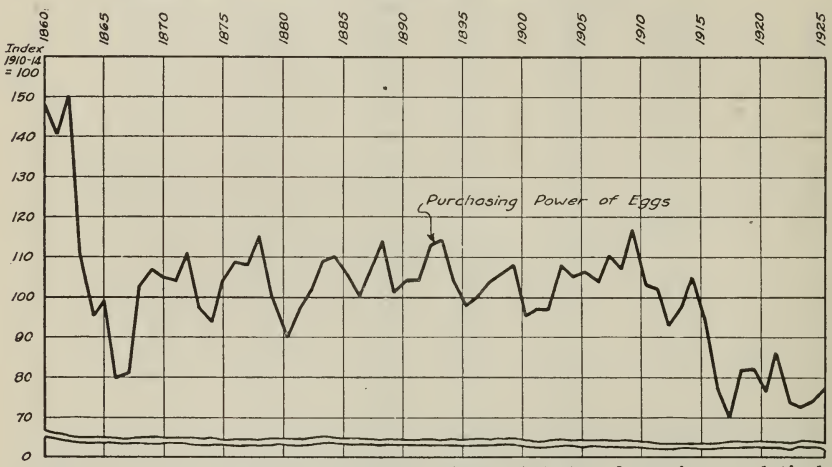

Fig. 11.—The California poultryman since 1860 has been in a relatively advantageous position compared with the producers of other commodities. From 1868 to 1915 the purchasing power of eggs was favorable during the major portion of the years. In spite of the prices obtained from 1915 to 1920 the poultryman was in an unfavorable position owing to the high prices which he had to pay for other commodities. It should be remembered that until 1910 California imported eggs and a freight differential acted in favor of the state. Data from table 11, p. 27.

San Francisco and Los Angeles prices. Prices for New York and Chicago, U. S. D. A. Yearbook 1925, pp. 1224, 1225).

Too much stress must not be placed on the purchasing power of eggs in California. For the state as a whole, no entirely satisfactory weighting system for obtaining the yearly price on the farm has been developed. Both the seasonal production and the seasonal price render it difficult to gauge the returns to the producer accurately, although an excellent start has been made toward obtaining more certain statistics for production within the state. In the first part of this discussion it should be borne in mind constantly that the yearly average prices used in the computation of purchasing power are simply the averages of the monthly average wholesale prices for eggs.

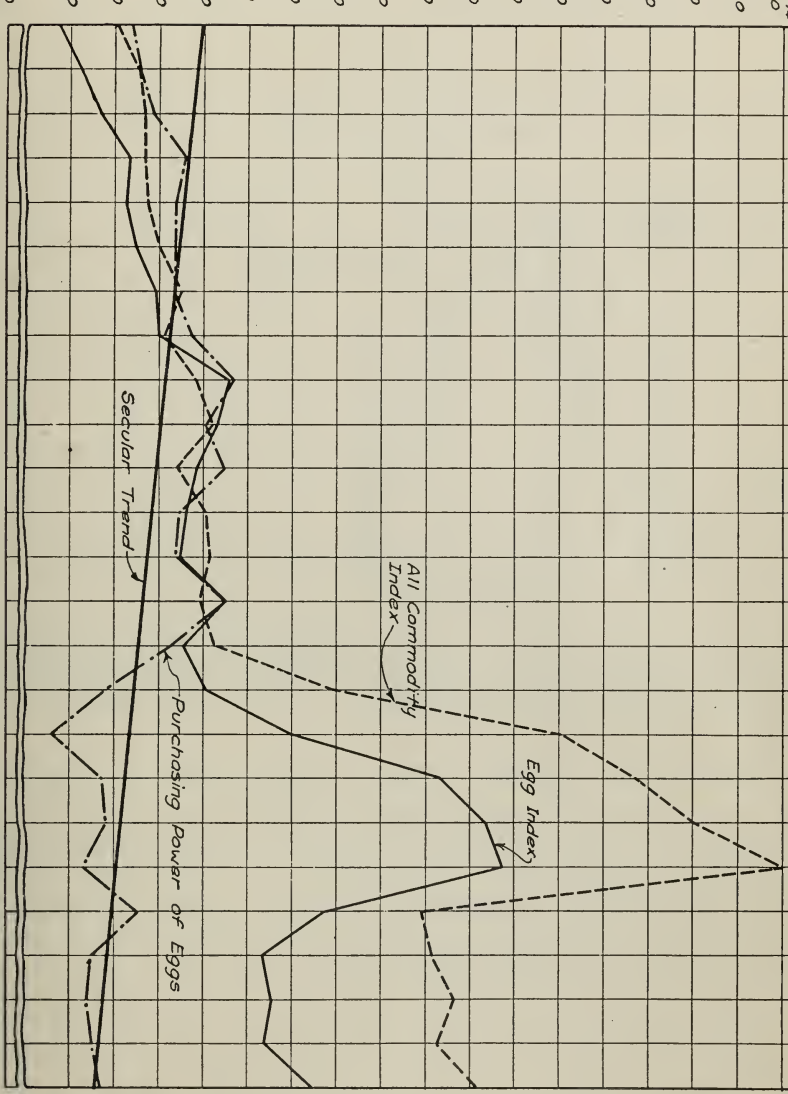

Fig. 12.—From 1900 to 1909 the "All Commodity Index" was higher than the "Egg Index." In 1915 the former began to climb more rapidly than the latter and has remained above it since that time.* Data from table 12, p. 30.— * Equation for the line of trend is $y = 87.72 - 1.008\,x$, origin 1913.

It should also be remembered that the term "purchasing power" is used in comparison with the wholesale prices of 404 commodities. It is highly improbable that the poultryman purchases any considerable percentage of some of these commodities, and even if he did purchase all of them, the prices listed are for the country as a whole and

TABLE 12

EGGS: ACTUAL AND RELATIVE WHOLESALE PRICES, PURCHASING POWER, LOS ANGELES, 1901–1925

Year	Actual price (cents per dozen)	Relative price	Purchasing power	Year	Actual price (cents per dozen)	Relative price	Purchasing power
	I	II	III		I	II	III
1901	22.7	67.5	84	1914	35.1	104.7	105
1902	24.8	73.9	86	1915	32.0	95.5	93
1903	25.9	77.0	89	1916	33.8	100.7	78
1904	28.0	83.5	96	1917	40.0	119.2	66
1905	27.8	82.9	94	1918	51.3	153.0	77
1906	28.5	84.9	94	1919	55.0	163.7	78
1907	30.1	89.7	94	1920	56.1	167.1	73
1908	30.2	90.1	98	1921	42.7	127.1	85
1909	35.6	106.0	107	1922	38.2	113.7	75
1910	34.8	103.7	101	1923	38.7	115.3	74
1911	33.2	99.0	105	1924	38.2	113.9	75
1912	32.3	96.3	95	1925	41.7	124.3	77
1913	32.1	95.7	94				

Sources of data: Column I. Based upon computations made by author. Wholesale price is the arithmetic averaeg of monthly quotations. Monthly quotation obtained by computing the arithmetic means of Wednesday quotations in each month. Original quotations from Cal. Cultivator. All quotations are *net* as the trade discount has been subtracted by the author. Column II. Computed by author, based upon 1910-1914=33.50=100. Column III. Computations by author based upon Column II and "All Commodity" index (Bureau of Labor Statistics).

not especially for California. From the preliminary cost of production studies carried on to date (pages 146–155), it should be noted that the poultrymen in the Petaluma section purchased feeding stuffs amounting to 50 per cent or over of the costs of production. While the purchasing power studies are of interest—especially to the industry, as a whole, the individual poultryman is perhaps more interested in the ratio of feed costs to egg prices.

Comparative prices of eggs in certain cities.—Higher prices were realized for fresh extra eggs on the San Francisco and Los Angeles markets for the first part of the decade 1910–1920 than on eastern markets. In comparison with the 1910–1914 quotations as a base, prices in the east since 1918 have been relatively higher than those in California. In certain cases, California quotations were actually below those in some of the eastern centers.

Every effort should be made to decrease costs of production, to produce "quality" products, and to lessen the cost of transportation. Under the stimulus of relatively high prices, a great expansion took place in the poultry industry of the state and large shipments of eggs were sent to the eastern markets. California was thus placed in the rôle of an exporter rather than an importer. This surplus in the state has made the price relatively lower in California than on the

Average Prices of Eggs Per Dozen at New York, Chicago and San Francisco, 1910–1925

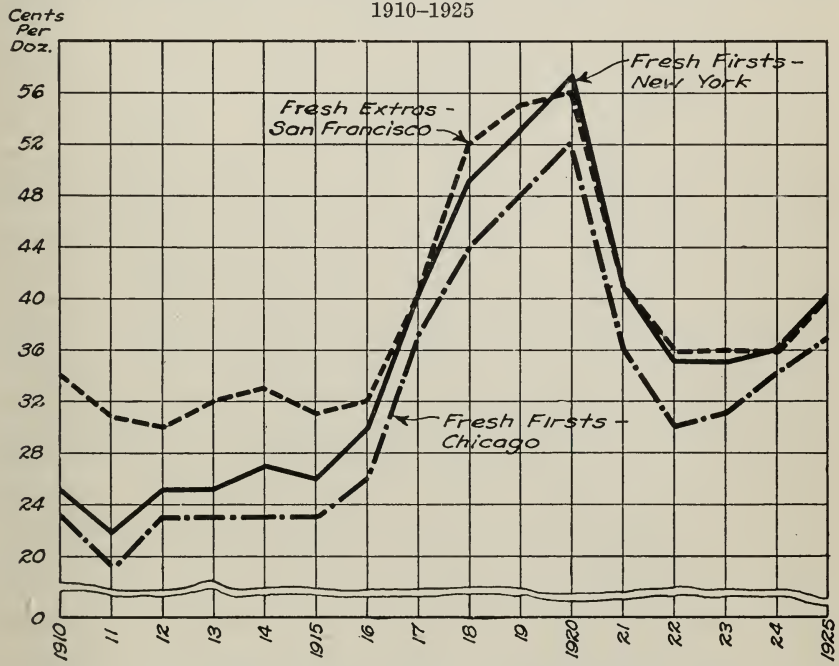

Fig. 13.—The average price per dozen for certain grades of eggs at three cities of the country gives a partial explanation of the reason for the purchasing power of eggs in California failing to hold up as well as the purchasing power in the country as a whole. It should be especially noted that from 1910 to 1915 quotations of extra eggs in San Francisco were far above the quotations for certain grades of eggs in New York and Chicago. Since 1916 the quotations in San Francisco have been more nearly equal to quotations for standard grades in eastern cities. Data for New York and Chicago from U. S. D. A. Yearbook 1924, pp. 1002 and 1003. 1925 prices furnished by courtesy of Bureau of Agricultural Economics. Data for San Francisco from table 11, p. 27.

eastern markets. It is to these markets, especially New York, that California has been sending the larger part of the surplus. The increase in production, placing the state on an exporting basis, has made competition keener than before the war, and from all indi-

cations has established this as the basis on which the state will have to compete in the future. Isolation, which at one time tended to make prices higher in California has, together with the surplus, made prices lower during the past few years.

Purchasing power of eggs and other agricultural commodities in the United States.—The census statistics for 1925 show a large increase in the number of poultry in the country as a whole. The diagram shown in figure 8, page 24, presents a partial explanation at least of this expansion in the poultry industry. A comparison is made between the relative prices for eggs in the United States and the price index of thirty other agricultural commodities. (Bureau of Agricultural Economics statistics as published in the Supplement to the Agricultural Situation, June, 1925, pp. 54–62.) In 1910 the purchasing power of eggs was above that of the combined agricultural products. During the year 1911 it showed a considerable decline, but in 1912 it advanced and remained above that of the other commodities until 1916. From 1916 to 1919 other agricultural products advanced more rapidly in price and hence in purchasing power than did eggs. From 1920 through 1925 the relative price of eggs and the purchasing power have been higher than for other agricultural products. For the country as a whole, the price changes of eggs from year to year have not been as violent as in the case of other commodities. From 1920 to 1921, it should be noted that although the price of eggs declined it did not decline as much as that of other farm products. In spite of the adverse agricultural conditions existing in 1921, eggs showed a favorable purchasing power, being over 100 per cent. Although the differences between the purchasing power of other agricultural products are less than in 1920 or 1921, eggs have been relatively of a higher value than the aggregate of the other farm products since 1920.

The trends of relative prices show that during the sixteen-year period the general tendency has been for eggs to advance more rapidly in price than other agricultural products. Of more interest are the lines of trends for purchasing power. The sixteen-year period shows a decline for both eggs and other commodities—but less for eggs than for other products.

Being relatively higher in price than most other agricultural products during the past six-year period, the reasons for the large increase in the chicken population of the nation are obvious. The bulk of the nation's eggs is produced as by-products in other lines of agricultural endeavor on hundreds of thousands of farms where it is comparatively easy to increase or decrease production.

Monthly index of purchasing power.—Since seasonal variation in price and production make it difficult to arrive at a satisfactory yearly price, an attempt has been made to compile a monthly index of purchasing power at both San Francisco and Los Angeles. The producer is more interested in obtaining a cent more per dozen for his eggs in March and April than he is in October or November; consequently, he is more desirous of seeing the purchasing power 100 per cent in the months of flush production.

The arithmetic mean for each month during the period 1910–1914 has been computed and is as follows:

	San Francisco	Los Angeles
January	33.60	37.14
February	24.52	28.60
March	19.84	23.72
April	21.30	23.90
May	22.40	23.82
June	23.80	26.16
July	26.98	29.30
August	32.02	33.80
September	39.00	38.82
October	46.44	45.52
November	51.06	48.88
December	40.94	42.54

The "All Commodity Index" by months was then computed in the same manner as the egg prices. The monthly arithmetic mean (1910–1914) for the "All Commodity Index" is:

January	99.6
February	99.4
March	100.0
April	100.5
May	99.7
June	99.3
July	99.7
August	101.1
September	101.6
October	100.2
November	99.1
December	98.6

A monthly relative price for eggs was next obtained by dividing the price for each month by the average price for each month of the base period, 1910–1914. Likewise, a monthly relative for "All Commodities" was obtained by dividing the "All Commodity Index" for each month by the average of each month during the base period, 1910–1914.

The purchasing power by months was then obtained by dividing the egg price relative by the "All Commodity" relative for the corresponding month.

TABLE 13

Monthly Purchasing Power of Eggs, San Francisco, 1910–1926

Months of 1910–1914=100, i.e., January, 1910–1914=100, etc.

Month	1910	1911	1912	1913	1914	1915	1916	1917
January	93	98	105	83	123	87	83	71
February	105	111	101	77	106	89	89	85
March	103	100	104	89	104	104	84	80
April	108	100	98	90	105	102	83	86
May	105	103	91	95	103	101	81	80
June	108	98	89	101	104	93	83	69
July	106	103	92	97	102	91	80	67
August	108	102	88	99	103	96	81	70
September	104	104	94	98	101	93	77	64
October	102	102	93	102	102	96	73	61
November	109	100	91	106	94	95	64	59
December	102	100	81	106	112	87	61	67

Month	1918	1919	1920	1921	1922	1923	1924	1925	1926
January	91	83	72	94	74	70	70	85	63
February	83	77	77	85	77	70	70	71	67
March	97	97	83	95	82	77	75	93	87
April	89	102	78	80	82	79	81	88	84
May	84	102	74	69	73	79	75	89	81
June	83	94	73	78	71	74	85	91	83
July	81	85	78	96	62	69	80	87	81
August	78	77	74	90	60	78	74	79	80*
September	72	76	76	86	74	78	79	73	75*
October	74	73	77	88	80	77	72	73	72*
November	71	69	78	81	69	64	65	64	.....
December	95	76	91	86	80	70	71	66	.....

Source of data: Computations by author. See page 164.
*Subject to revision.

TABLE 14

Monthly Purchasing Power of Eggs, Los Angeles, 1910–1926

Months 1910–1914=100, i.e., January, 1910–1914=100, etc.

Month	1910	1911	1912	1913	1914	1915	1916	1917
January	98	102	95	91	116	92	84	65
February	91	115	96	89	110	96	86	65
March	99	104	106	93	98	93	78	69
April	102	106	99	88	106	100	84	78
May	105	107	85	92	109	103	86	74
June	101	104	98	92	106	90	83	67
July	106	106	97	89	103	92	76	63
August	105	107	92	95	101	94	77	64
September	107	102	97	93	94	92	76	64
October	102	103	93	95	108	92	77	65
November	104	100	100	100	97	91	70	61
December	97	104	89	101	110	85	64	66

TABLE 14—(*Continued*)

MONTHLY PURCHASING POWER OF EGGS, LOS ANGELES, 1910–1926

Months 1910-1914=100, i. e., January 1910-1914=100, etc.

Month	1918	1919	1920	1921	1922	1923	1924	1925	1926
January	77	75	64	92	80	70	70	88	55
February	76	68	65	78	68	61	62	74	62
March	84	85	69	83	76	70	72	81	75
April	83	95	68	76	78	76	76	82	80
May	83	99	73	72	75	80	78	88	82
June	75	89	69	76	72	74	85	85	79
July	77	82	71	82	66	68	78	83	76
August	75	73	71	85	62	73	73	79	78*
September	71	72	74	85	71	79	77	73	77*
October	73	73	78	94	80	80	78	74	74*
November	73	70	82	89	77	74	73	66	.....
December	81	70	93	90	81	74	71	66	.....

Source of data: Computations by author. See page 163.

* Subject to revision.

Seasonal variation in the prices of extra and pullet eggs.—Quotations at San Francisco and Los Angeles show the same general seasonal variation, February to July, inclusive, being the months of relatively low quotations on extra eggs. While pullet eggs do not decline relatively as much as extra eggs, neither do they advance as much. One interesting difference between the quotations at Los Angeles and San

TABLE 15

SEASONAL VARIATION IN PRICES OF EXTRA AND PULLET EGGS, SAN FRANCISCO AND LOS ANGELES

Months	San Francisco		Los Angeles	
	Extras	Pullets	Extras	Pullets
	I	II	III	IV
January	106.1	112.5	106.0	115.4
February	77.4	81.2	81.4	80.2
March	65.5	71.6	68.9	72.6
April	69.2	76.1	72.6	76.8
May	71.5	77.8	75.0	79.6
June	76.0	80.3	79.8	83.3
July	83.4	86.1	87.7	88.9
August	99.5	98.3	102.7	99.3
September	120.0	114.5	115.4	106.0
October	144.2	133 0	136.5	122.7
November	154.0	140.0	144.0	137.1
December	133.2	129.2	130 0	138.0
Average	100.0	100.0	100.0	100.0

The above table shows that if 100 were taken as an average for each month, 106.1 would be the relative wholesale price for extras at San Francisco in January, etc.

Source of data: All computations have been made by the author, median link relative method being used. Column I, 1900–1925; II, 1912–1925; III, 1900–1925; IV, 1917–1925.

Francisco is that during February pullet eggs have been relatively higher than extras at San Francisco without there being any considerable difference at Los Angeles. During December on the other hand, pullet eggs have been relatively higher at Los Angeles than extra eggs, while the reverse has been true at San Francisco.

A comparison of prices on the San Francisco market during the five-year period 1921–1925 with those of the period 1900–1904, show the relative prices in general to have dropped during the winter months and risen during the period March to July, inclusive. This same general tendency is apparent on the Los Angeles market except for the fact that the prices during the fall months were relatively higher during 1921–1925 than from 1900 to 1904.

THE EGG-FEED PRICE RATIO

A valuable conception of the status of the egg industry is gained by a study of the purchasing power of the product in terms of feed rather than in dollars and cents. The fact that eggs sell high in November of one year and somewhat lower in the same month of the next year is not of as much concern to the producer as whether the product will purchase feed at a favorable ratio.

Egg-feed price ratio, Petaluma.—The egg-feed price ratio used in this study indicates the number of dozens of fresh extra eggs required to purchase 100 pounds of feed (50 pounds of grain, 50 pounds of mash). The ration used in the study of the egg-feed price ratio is as follows:

Grain	Mash
12.5 pounds wheat	20 pounds bran
12.5 pounds corn	10 pounds corn meal
12.5 pounds barley	10 pounds barley
12.5 pounds milo	5 pounds meat scrap
	5 pounds fish scrap
50 pounds	50 pounds

This ration was used in the Petaluma egg-laying contest.

This egg-feed price ratio is not comparable with an egg-feed price ratio for the United States as a whole or for any of its geographic subdivisions. Such a ratio, to be of any value, must necessarily take into consideration other pertinent factors. It is obvious that other factors such as (1) average egg yield per hen, (2) seasonal yield per hen, (3) quality of product, (4) economy of production, and (5) efficiency of marketing, play an important part in the study of the egg-feed ratio.

The proportions of feed ingredients given above remained the same for the fifteen years (1911–1925) except in 1918, 1919, and 1920, when wheat was eliminated from the ration on account of the war emergency. Equal parts of corn, barley, and milo were substituted during this period for the grain portion of the ration.

Egg and Feed Wholesale Price Relatives, Petaluma, 1910–1925

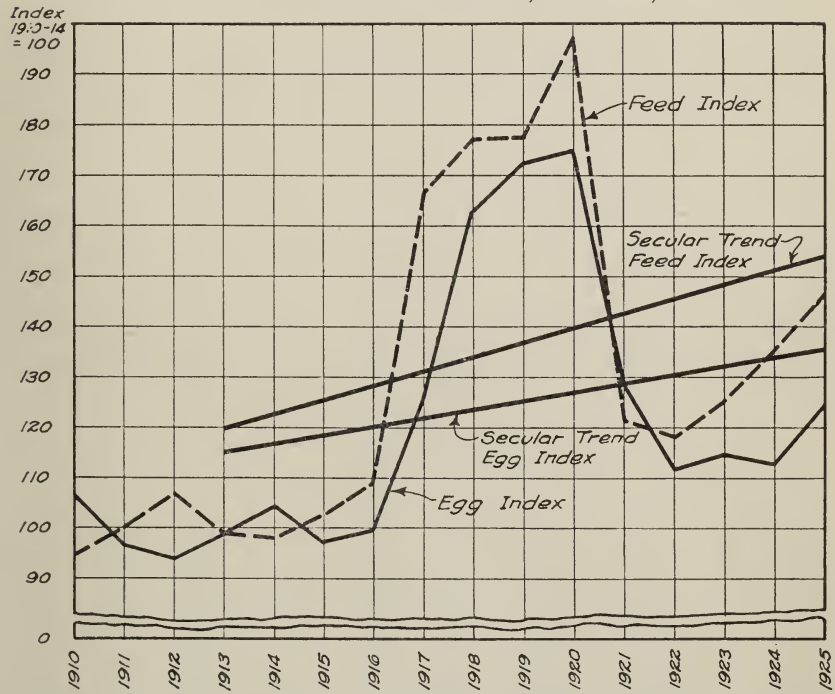

Fig. 14.—From 1910 to 1915 the differences between the relative prices of feed and eggs in the Petaluma district were not great. In 1916, however, the feed price index began to advance more rapidly than the egg price index and remained higher until 1921, which was a favorable year for the poultryman buying all of his feed as the feed price index fell below the egg price index for that year. The tendency since 1913 has been for the prices of feeds to advance more rapidly than the price of eggs. Data from table 18, p. 41.

Comparisons throughout the year are based upon weekly feed and egg quotations in the Petaluma poultry district of California. The feed quotations used are wholesale quotations published in the Petaluma Weekly Poultry Journal. The costs of mixing and grinding the feeds have been added to the feed costs. The egg quotations used are the net wholesale quotations of fresh extra eggs on the San Francisco Wholesale Dairy Produce Exchange. These quotations were

* The equation of the feed index is $y = 136.6 + 2.8\,x$, origin 1919. The equation of the egg index is $y = 125.2 + 1.7\,x$, origin 1919.

used because of the difficulties encountered in obtaining comparable prices paid to farmers over long periods of time.

Figure 15 shows the yearly variation in the egg-feed ratio. During the fifteen year period, 1911–25, the range of the yearly ratio has

TABLE 16

EGG–FEED PRICE RATIO—PETALUMA

The number of dozen extra eggs required to purchase 100 pounds of the following mixture: 50 pounds mash (20 pounds bran, 10 pounds corn meal, 10 pounds ground barley, 5 pounds meat scrap, 5 pounds fish scrap); 50 pounds grain (equal parts corn, barley, milo and wheat).

Month	1911	1912	1913	1914	1915	1916	1917	1918
January	5.90	6.39	6.70	4.69	6.66	5.65	6.88	6.00
February	7.62	8.77	9.62	6.95	9.00	7.28	8.45	8.64
March	9.83	10.25	10.54	9.40	10.40	9.26	10.24	9.95
April	10.00	10.80	9.95	8.73	9.58	8.90	10.32	10.14
May	9.35	11.00	9.50	8.40	9.00	8.64	10.91	9.54
June	9.12	10.43	8.30	7.78	8.61	8.04	11.04	8.94
July	7.96	8.43	7.35	6.72	7.75	7.26	9.68	7.75
August	6.57	7.17	6.23	5.66	6.35	6.61	8.46	6.72
September	5.52	5.66	5.09	5.04	5.18	5.73	7.69	5.79
October	4.39	4.66	5.25	3.89	4.18	4.82	6.55	4.73
November	4.06	4.08	3.41	3.80	3.61	5.04	6.04	4.13
December	4.98	5.52	3.91	4.16	4.55	6.19	6.79	4.07
Average	7.11	7.76	7.15	6.27	7.07	6.95	8.59	7.20

Month	1919	1920	1921	1922	1923	1924	1925	1926
January	5.60	6.50	4.96	6.08	6.63	6.80	6.63	7.44
February	8.45	8.80	7.45	8.48	9.35	9.46	10.80	9.49
March	7.77	9.72	8.29	10.21	10.18	10.55	10.41	8.66
April	7.30	9.65	9.43	9.38	9.65	10.50	9.85	8.24
May	7.06	10.00	10.45	10.18	9.40	10.35	8.26	8.01
June	7.00	9.74	9.63	9.08	9.20	8.55	8.44	7.16
July	7.05	8.08	6.37	8.95	8.55	8.71	7.73	6.84
August	6.77	7.18	5.55	7.80	6.15	8.08	7.08	6.07
September	5.59	5.86	4.56	5.06	5.30	6.35	6.03	5.18
October	4.82	4.62	3.64	3.93	3.87	5.75	4.93	4.46
November	4.52	4.08	3.44	4.36	4.71	5.75	4.85	.....
December	5.36	3.87	3.90	5.13	5.29	6.29	5.77	.....
Average	6.44	7.34	6.47	7.39	7.36	8.10	7.57	.....

Source of data: All computations by author. The aggregate price of each ration for the period was computed by using the wholesale prices of feed quoted weekly in the Petaluma Weekly Poultry Journal. The wholesale prices of eggs at San Francisco were used in the study. The figures above were obtained by dividing the wholesale price of eggs into the wholesale price of one hundred pounds of the ration, plus a charge for grinding and mixing.

been from 6.27 dozen, or 75.2 eggs, in 1914 to 8.59 dozen or 102.8 eggs in 1917. The arithmetic mean for the period is 7.25 dozen or 87.0 eggs.

There has been an upward trend in the egg-feed ratio as is shown by the line of trend in figure 15. From 1911 to 1925, the number of dozen extra eggs required to purchase 100 pounds of feed increased 5.4 per cent (trend values).

The relative prices for eggs and feeds (for the ration used) are shown in figure 14. Both indices are based on the period 1910–1914 as 100, and it may be noted that there is a fairly close agreement between these two. During 1916, however, feed increased far more rapidly in price than did eggs. The drop in the feed index in 1921, however, was greater than that in the egg index, although in 1922 the egg index fell below that of feed. The tendency in 1925 and during the first ten months of 1926 was for the egg index to gain on the feed index. The general trend during the past thirteen years, 1913–1926, has been for feed to rise somewhat more rapidly in price than

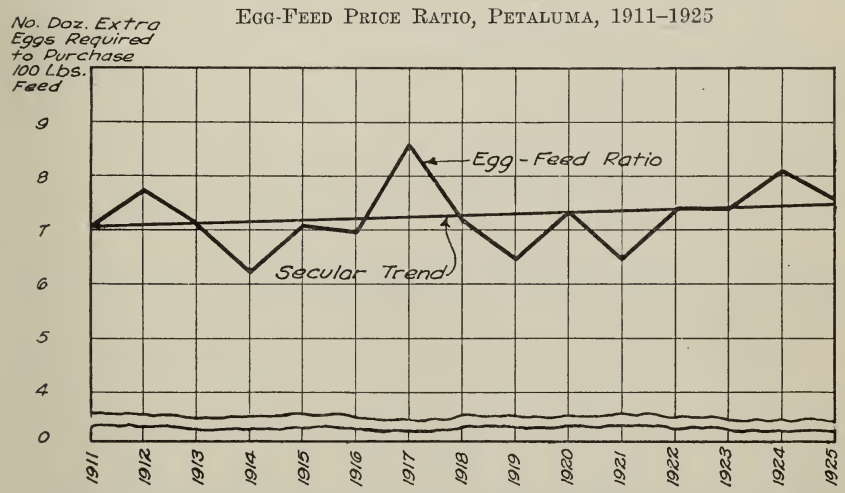

Fig. 15.—The chart shows the number of dozen eggs at the average wholesale price per year which are required to purchase one hundred pounds of a standard poultry ration. Since 1910 there has been a slight tendency for the prices of feed in the Petaluma area to increase more rapidly than the prices for extra eggs. The years 1914, 1919 and 1921 were especially favorable for the poultryman buying his feed while 1912, 1917 (in spite of the high prices for eggs) and 1924 were unfavorable.* Data from table 17, p. 40.

eggs. This is shown quite plainly in figure 14 by the trend of the relative prices of feed and eggs. The ratio fluctuates above and below the trend, being sometimes above and sometimes below it. These fluctuations are caused in part by cyclical changes and in part by accidental changes. During nine of the fifteen years covered by the study, namely, in 1911, 1912, 1913, 1917, 1920, 1922, 1924, and 1925, the ratio was less favorable than normal. Two or three years apparently are required to complete the upward or downward movement of the cycle, viz., 1912–1914, 1914–1917, 1917–1919, 1921–1924.

* Equation for line of trend is $y = 7.003 + .02722\,x$, origin 1911.

The wide fluctuations in egg prices month by month and over a period of years constitute one of the most important problems with which the poultry industry has to deal. A study of table 17 and figure 16 (fifteen-year period) shows that March stands out as the month of high egg-feed price ratio and low egg prices while November has the lowest ratio and is the month of highest egg prices. The order of the months in the egg-feed price ratio is the inverse of what is found in the variation of wholesale egg prices.

There is no considerable difference in the prices of feed for the various months. Therefore, the comparison of the prices received for eggs and the resulting ratio to feed costs has value. More eggs should be produced during the last five months of the year. This is a fact generally admitted; and the most efficient poultryman is managing his flock now with this end in view. The majority of the people engaged in the poultry industry have a long way to go, however, before production will materially change the fall and winter prices.

A study of the egg-feed ratio coupled with a study of the increase in average egg production gives a partial explanation of how persons already in the industry in California continue to make a profit, and in addition, it offers a partial explanation for the expansion which has taken place.

Seasonal variation.—The seasonal variation in the egg-feed price ratio is shown in table 17 and in figure 16 (page 41). In table 17 the average month is taken as 100, all percentages above or below 100 being deviations from the average. The seasonal variation in the wholesale prices of fresh extra eggs at San Francisco is also given.

TABLE 17

SEASONAL VARIATIONS IN EGG-FEED PRICE RATIO AND IN QUOTATIONS ON EXTRA EGGS

(100 = normal for month)

Egg-Feed Price Ratio		Fresh Extra Quotations	
I		II	
November	59	March	66
October	64	April	69
December	69	May	72
September	76	June	76
January	88	February	77
August	93	July	83
July	109	August	100
February	120	January	106
June	124	September	120
May	130	December	133
April	133	October	144
March	136	November	154

Source of data: Column I—computations by the author based upon data in Table 16. The median link relative method was used. Column II—computations by author based upon compilations of wholesale monthly prices obtained weekly from the files of the Pacific Rural Press. The median link relative method was used.

Seasonal Variations in Egg-Feed Price Ratio, Petaluma, and in Fresh Extra Quotations, San Francisco

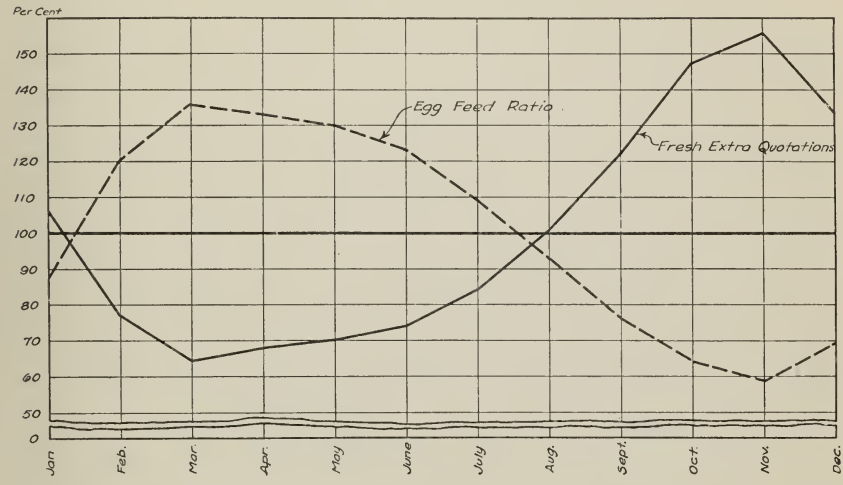

Fig. 16.—Eggs produced in August, September, October, November, December and January purchase relatively more feed than eggs produced during the remaining six months of the year. When the egg-feed ratio is high the price of extras is low, e.g., in March, whereas the reverse is true in November. Data from table 17, p. 40.

TABLE 18

Poultry Feeds: Relative Wholesale Prices at Petaluma, 1910–1925, and Eggs: Relative Wholesale Prices at San Francisco, 1910–1925

1910–1914=100

Year	Relative feed prices	Relative egg prices	Year	Relative feed prices	Relative egg prices
1910	94.8	106.2	1918	177.5	163.0
1911	100.4	96.4	1919	177.3	172.4
1912	107.6	93.9	1920	197.5	174.9
1913	99.2	98.9	1921	121.2	128.1
1914	98.1	104.6	1922	118.3	111.5
1915	102.7	97.1	1923	124.9	114.3
1916	108.9	99.6	1924	135.1	112.8
1917	166.8	125.3	1925	147.4	125.0

Sources of data: Weekly wholesale poultry feed quotations were obtained from the Petaluma Weekly Poultry Journal. The arithmetic mean of the weekly quotations was used as the quotation for each month. The wholesale price of 100 pounds of feed used in the egg-feed ratio was then computed and a fixed sum for mixing and grinding the feed was added. The wholesale quotations of eggs are for the San Francisco market.

SOURCES OF CALIFORNIA POULTRY FEEDS

California poultrymen are users of large amounts of raw materials which are manufactured into eggs and poultry, and are naturally interested in the sources of supply for the various feeds purchased.

TABLE 19

POULTRY FEEDS: QUANTITIES SOLD TO POULTRYMEN IN CALIFORNIA BY FEED CONCERNS, 1925

Feed	Amount (pounds)	Per cent of total feed listed	Origin of feed	
			California	Other places
			(Ranges of estimate)	
Corn*	50,868,683	30.9	0–15%	70–100% Middle West
Wheat	26,550,072	16.1	10–60%	40–70% Utah, Idaho, Oregon, Washington 0–20% Middle West
Shorts	17,684,995	10.7	0	0–100% Oregon, Washington 0–40% Canada 0–60% Kansas
Barley	8,816,659	5.4	100%	0
Bran	9,501,516	5.8	0–30%	10–100% Oregon, Washington, Utah, Idaho, Canada 0–20% Kansas
Milo†	7,538,505	4.6	50–60%	40–50% Oklahoma and Texas
Meat scrap	7,157,300	4.3	100%	0
Oats	5,904,702	3.6	0–80%	20–40% Oregon, Washington, Utah and Idaho 0–60% Middle West
Rice bran	5,877,776	3.6	100%	0
Shell	5,713,570	3.5	0–40%	60–100% Eastern
Oil cake meal	4,968,010	3.0	0–50%	0–100% Orient
Kaffir	3,248,134	2.0	0–50%	0–100% Oklahoma and Texas
Middlings	2,909,867	1.8	0	0–20% Canada 20–100% Utah, Idaho, Oregon and Washington
Bone	1,911,300	1.2	100%	0
Charcoal	1,748,800	1.1	0–10%	90–100% Eastern
Milk	1,455,142	0.9	100%	0
Grit	827,550	0.5	100%	0
Fish meal	811,604	0.5	100%	0
Alfalfa meal	351,500	0.2	100%	0
Miscellaneous	572,924	0.3		
	164,418,609	100.0		

Sources of data: Data furnished to author by several California feed concerns.
* One dealer estimates that 15 per cent of the corn sold by his firm originated in the Argentine.
† Includes Egyptian corn (Brown and White Dura).

Data furnished the author by various concerns in California give some indication concerning the sources of supply of concentrated feeds. This information will give the poultrymen some idea as to current demands for various feeds. The feeds listed below have been sold to California poultrymen during the year 1925. In explanation of table 19, it will be noted that 50,868,683 pounds of corn, or 30.9

per cent of the total amount of feed sold, have been bought by California poultrymen. The highest amount originating in California was 15 per cent. Estimates of the percentage of corn coming from the Middle West ranged from 70 to 100 per cent.

Table 19 indicates rather a serious problem to the poultry industry of the state. On the most conservative basis it is estimated that California imports over half the poultry feeds sold within the state. It is hoped that by some method California farmers growing feed and poultrymen buying feed can be brought to a realization of the feed needs of the poultry industry of the state. Feedstuffs are relatively bulky and heavy, hence the freight rates per pound are necessarily high. The poultryman in many instances is paying freight on the raw material in the shape of feedstuffs and is paying freight on the manufactured product exported from the state.

PRICE RELATIONSHIPS BETWEEN GRADES OF EGGS

Ratios between the quotations of pullet and extra eggs on the San Francisco and Los Angeles markets.—Both pullet and extra eggs have been quoted regularly in San Francisco since 1912, and in Los Angeles since January 1, 1917. Comparisons between these two grades have been made by the use of a percentage relationship.

The following will illustrate the method of obtaining the ratio used in this study. Net quotations on the Los Angeles market, January 3, 1917, were: Pullets $0.34, Extras $0.38, making the ratio 34/38, or 89.47 per cent. One net quotation for both pullets and extras was obtained on the same day during every week of this entire period, and the average (arithmetic mean) of the four or five ratios obtained for each month was then taken as the average for that month.

That there is not a constant relationship between these quotations can be seen from table 20, p. 45. The ratios on the San Francisco market have ranged from 66.2 per cent (October 19, 1922) to 100 per cent (October 29, 1913, February 17, 1915), and at Los Angeles from 66.3 per cent (October 12, 1925) to 100 per cent (May 1, 1918).

On account of the standardization in grades, the demand for pullets is at times comparatively inelastic, a situation caused by the requirements of chain stores, markets, and restaurants.

The average (arithmetic mean) of the 731 ratios in the San Francisco study and of the 469 for Los Angeles are approximately the same (87 per cent).

The trend for San Francisco is slightly downward from 1912 to 1925. During the period 1916–1920 the ratio was especially high, but this might have been expected since certain concerns undoubtedly shifted their demand from extras to pullets during periods of relatively high prices. Since 1922, however, the tendency has been to

PERCENTAGE RELATIONSHIP BETWEEN THE NET QUOTATIONS OF PULLET AND EXTRA EGGS ON THE LOS ANGELES MARKET, 1917–1926

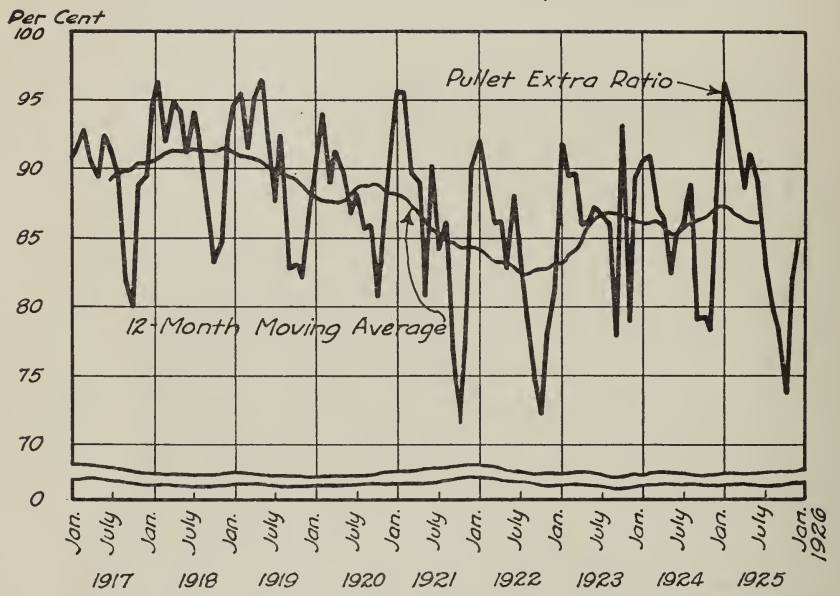

Fig. 17.—A pronounced seasonal variation can be seen in the relationship between the prices of pullet and extra eggs. Pullet eggs are usually relatively higher during the first months of the year and lower during the fall months. There has been a tendency during the entire period for pullet eggs to be relatively lower than extras. Data based on calculations from table 111, p. 163, and table 113, p. 165.

increase the ratio. The trend in the Los Angeles ratio has also been downward.

There is a considerable fluctuation from day to day and from week to week, and it is evident that there can be no wide variation in the nutritive value of the two grades within such a short period.

Seasonal variation.—There is a pronounced seasonal variation in the relationship, as can be seen from table 20, p. 45 and figure 18. January stands out as the month of high relative value while October is low.

Seasonal Variation in Percentage Relationship Between Pullet and Extra Quotations, Los Angeles and San Francisco

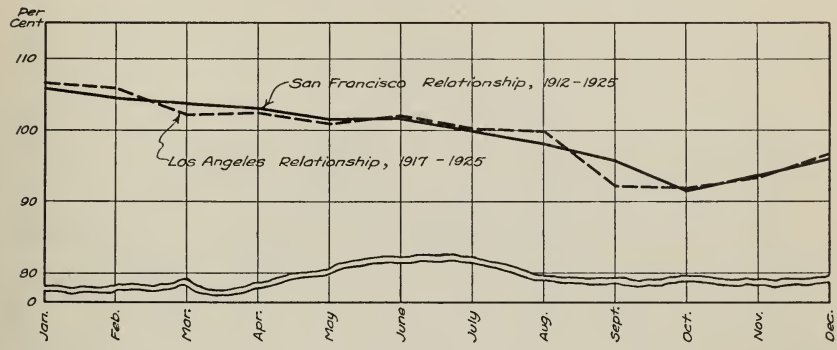

Fig. 18.—The data used in connection with the chart are the percentage relationships between the prices of extra and pullet eggs. The normal ratio (represented by 100 per cent or unit y) is high during the first months of the year. The same general seasonal variation in the relationship between pullet and extra eggs is evident in Los Angeles as in San Francisco. Although receipts are not segregated, available data point to low comparative receipts of pullets during the first months of the year and high receipts in the fall. Data from table 20, p. 45.

TABLE 20

Eggs: Seasonal Variation in the Percentage Relationships of Pullet Quotations, to Extra Quotations, San Francisco, 1912–1925, Los Angeles, 1917–1925

Month	San Francisco	Los Angeles	Month	San Francisco	Los Angeles
January	105.8	106.6	July	99.9	100.1
February	104.6	105.9	August	98.0	99.9
March	103.8	102.2	September	95.8	92.2
April	102.9	102.9	October	91.5	91.9
May	101.5	100.9	November	93.7	93.5
June	101.6	102.0	December	100.9	101.9

Note.—From the above table it will be seen that if the average monthly relationship between the prices of pullet and extra eggs equals 100, in January the San Francisco index is 105.8 or 5.8 per cent higher than the average; whereas in October the relationship is 91.5 or 8.5 per cent below the average relationship. Pullet eggs are therefore relatively high in January and low in October.

Source of data: Computations of the percentage relationship between the prices of pullet and extra eggs were made for Wednesdays of each week by the author. The arithmetic mean of the Wednesday percentage relationship for each month was then taken as the percentage relationship for the particular month involved. The seasonal variations were then computed from these monthly relationships by the link relative method.

Data for Los Angeles (computed from 1917–1925) evidence the same general seasonal variation as does San Francisco, except that the variations from March to June are comparatively nothing and the decline in the ratio from August to September is more abrupt than is the case on the San Francisco market.

PERCENTAGE RELATIONSHIP BETWEEN PULLET AND EXTRA QUOTATIONS, SAN FRANCISCO, 1912–1925; LOS ANGELES, 1917–1925

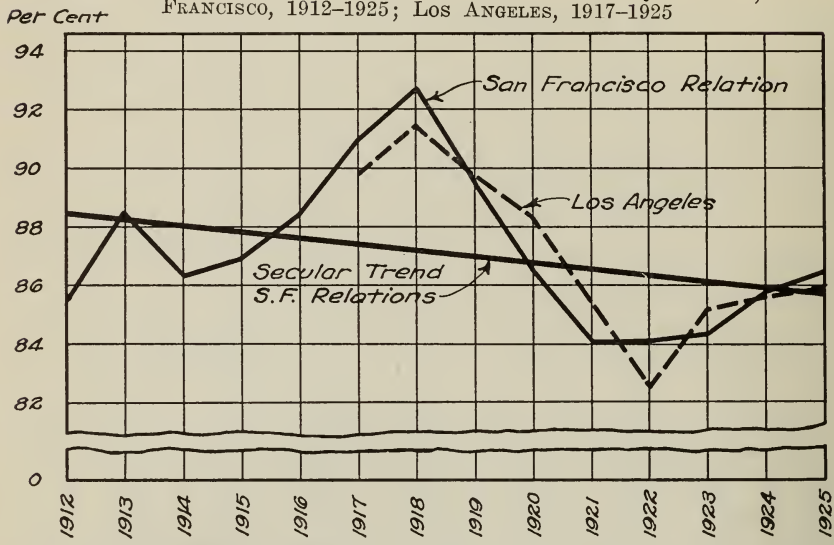

Fig. 19.—A comparison between the relationship of pullet to extra eggs in Los Angeles and San Francisco shows plainly that the relationship does not vary greatly as between the two markets. During the period of relatively high prices the relationship was high. In the comparatively unfavorable years pullet eggs have apparently been worth less. The general trend in the relationship on the San Francisco market, has been downward.* Data based on calculations, tables 111, 112, 113, 114, pp. 163–165.

PERCENTAGE RELATIONSHIP BETWEEN THE NET QUOTATIONS OF PULLET AND EXTRA EGGS ON THE SAN FRANCISCO MARKET, 1912–1926

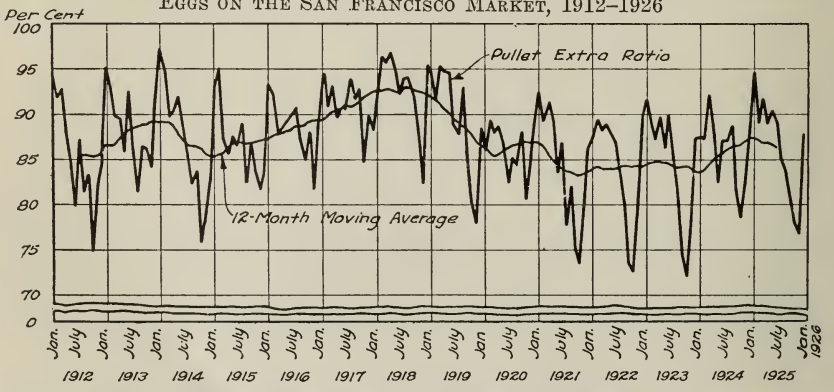

Fig. 20.—The percentage represents the percentage relationship between the wholesale quotations of pullet and extra eggs. Pullets are low in price when compared to extras during the months of August to November, inclusive. With only slight variations, San Francisco and Los Angeles follow the same trend. The ratio has been consistently lower, however, for September in Los Angeles. During the five years 1921–1925 there has been a pronounced decline in the ratio during September and October. Data based upon table 112, p. 164, and table 114, p. 165.

* The equation for the line of trend is $y = 87.12 - .108\,x$.

PER CAPITA YEARLY CONSUMPTION OF EGGS*

United States.—In 1918–19 the United States Department of Labor, through the Bureau of Labor Statistics, working in coöperation with the National War Labor Board, made an investigation into the cost of living in industrial centers of the United States. This covered white families in 92 cities or localities in 42 states. According to estimates obtained, the apparent per capita consumption of eggs in the United States (industrial centers) amounted to 12.49 dozens. It is of interest to note that California's largest markets, California and the North Atlantic States, claimed the highest per capita consumption. The western states led the entire country with 14.59 dozens, two dozens more than the average for the country as a whole. The North Atlantic States followed with 13.90 dozens. For the other sections, the per capita consumption was as follows:

South Atlantic States	11.90 dozens
South Central States	11.76 dozens
North Central States	10.75 dozens

The states producing the largest total surplus of eggs, and having the lowest prices, apparently consumed the smallest quantities of eggs. This may be due to the larger consumption of cereal products (bread, etc.) and potatoes in the Central States.

The per capita consumption of eggs in the rural districts is considerably larger than that of the industrial centers. Investigations by the United States Department of Agriculture during 1913–1914† indicated that the per capita annual consumption of 800 northern rural families was 33.6 dozens, while similar data from 150 southern families showed it to be 30.8 dozens.

Consumption of eggs in the United States compared with other countries.—British authorities‡ have estimated the per capita consumption of eggs in certain countries of the world to be as follows:

Canada	313
Belgium	213
United States	180
France	133
Great Britain	110
Sweden	86
Denmark	75
Norway	61

* U. S. D. A. Yearbook 1924, p. 1127.

† U. S. D. A. Bul. 410, Value to Farm Families of Food, Fuel and use of House.

‡ Ministry of Agriculture and Fisheries: Report on egg marketing in England and Wales, p. 12, London, 1926.

Egg products.—Eggs have many varied uses, some of the more important being:

1. Directly, as human food (shell eggs).
2. In baking (shell, frozen, and dried eggs).
3. In confectionery (principally egg albumen).
4. In the manufacture of mayonnaise dressing (principally egg yolks).
5. In photography (egg albumen).
6. In tanning (certain classes of eggs unfit for food).
7. In stock and poultry feeds (certain classes of decomposed eggs unfit for human food).
8. In fertilizers (any bad eggs).
9. In the manufacture of dyes (egg albumen).
10. In the manufacture of certain textiles (albumen).
11. In the manufacture of paints and varnishes (albumen).
12. In pharmaceutical preparations (albumen).
13. In clarifying wines and spirituous liquors (albumen).
14. In sizing paper (albumen).
15. In the manufacture of glue and adhesive (albumen).
16. In the manufacture of artificial ivory (albumen).
17. In the manufacture of ice cream, especially French ice cream (shell and dried or powdered eggs).
18. In the manufacture of soap (Germany—yellow of rotten eggs).

This list gives an idea of the importance of products other than shell eggs. (For egg equivalents see table 116, page 169.)

*The U. S. Standards and grades for eggs in commercial use.**—The establishment in San Francisco and Petaluma of a Federal-State Inspection service on eggs, in conjunction with the use of the tentative wholesale grades as formulated by the U. S. Department of Agriculture, Bureau of Agricultural Economics, marks a distinct advance in the marketing of this product.

The wholesale grades as used today are the result of a careful and intensive study of poultry production and marketing conditions throughout the United States over a period of years. They have grown out of the results of practical experience, and as at present constituted, are designed for nation-wide application. They are of a nature to lend themselves to refrigerator as well as fresh grades, and consequently will eventually bring about a common standard that will be understood wherever eggs are bought and sold in the United States.

* Courtesy of Henry G. F. Hamann, Bur. Agr. Econ., U. S. D. A.

This common standard is the thing that is at present lacking. Eggs bought or sold on one market under certain trade names, are resold on some other market under a name which may be similar to the first but interpreted differently. The term "Extra first" in Boston may also be used in New York or San Francisco, but each of these markets places a different construction on the term, relative to the eggs in question. This lack of a common terminology has complicated the entire economic scheme of marketing this product.

The grades used are based on the U. S. standards of quality for individual eggs, which were accepted by representative members of the trade in the United States at Chicago on January 19, 1925. With a thorough understanding of the points considered in determining the interior quality of an egg as presented in these standards, no real difficulty should be experienced in the interpretation of the various grades.

The U. S. standards of quality for individual eggs, as well as the tentative wholesale grades are presented in tables 21 and 22, and show the seven standard types or kinds, from which the grades have been developed. The four standard qualities for clean sound shell eggs are named—U. S. Special, U. S. Extra, U. S. Standard, and U. S. Trade. The two standard qualities of stained or dirty shelled eggs are named U. S. Standard Dirty and U. S. Trade Dirty. Those which are checked or cracked are named U. S. Checks or Cracks.

Since the U. S. Standards of quality relate to the condition of the shell as well as to the interior quality, color, size, and weight are not considered factors of quality, but of grade. Color of shell also is considered as a factor in establishing various color classes within the grades.

COMMERCIAL HATCHERIES IN CALIFORNIA

There were on January 1, 1926, two hundred sixty-two commercial hatcheries, each with a capacity of 1000 eggs or over, in 37 different counties of the state. One hundred thirty-five of these in twelve different counties are accredited. An accredited hatchery is one which follows certain rules and regulations prescribed by a Farm Bureau Accredited Hatchery Project. These include a rigid inspection of stock with reference to health and vigor, by persons over which the breeder has no control, and in addition conformation to certain standards which are set up with respect to the pedigree of the males used.

TABLE 21

U. S. Standards of Quality for Individual Eggs

Quality Factors	Specification of each Quality Factor						
	U. S. Special	U. S. Extra	U. S. Standard	U. S. Trade	U. S. Standard Dirty	U. S. Trade Dirty	U. S. Check or Crack
Shell	Clean; sound	Clean; sound	Clean; sound	Clean; sound	Stained or dirty but sound.	Stained or dirty but sound.	Clean or dirty; cracked but not leaking.
Air cell	1/8 in. or less; localized; regular.	2/8 in. or less; localized; regular.	3/8 in. or less; localized; may be slightly tremulous.	May be over 3/8 in.; may be bubbly or freely mobile.	3/8 in. or less; localized; may be slightly tremulous.	May be over 3/8 in.; may be bubbly or freely mobile.	May be over 3/8 in.; may be bubbly or freely mobile.
Yolk	May be dimly visible	May be visible	May be visible; mobile.	May be plainly visible; dark in color; freely mobile.	May be visible; mobile.	May be plainly visible; dark in color; freely mobile.	May be plainly visible; dark in color; freely mobile.
White	Firm; clear	Firm; clear	Reasonably firm	May be weak and watery.	Reasonably firm	May be weak and watery.	May be weak and watery.
Germ	No visible development.	No visible development.	Development may be slightly visible.	Development may be clearly visible but no blood showing.	Development may be slightly visible.	Development may be clearly visible but no blood showing.	Development may be clearly visible but no blood showing.

These standards of quality for eggs were proposed by the U. S. Department of Agriculture and at a national conference of the egg trade held in Chicago in January, 1925, were adopted as the National Standards of Egg Quality. These standards form the basis of the proposed U. S. Grades for Eggs, therefore a knowledge of them is essential to an understanding of the proposed U. S. Egg Grades.

Source of data: Table furnished by the Bureau of Agricultural Economics, U. S. D. A.

Further information on grades etc., can be obtained by writing to The Director, Bureau of Foods and Drugs, Berkeley, Calif., with a request for a copy of the circular "Laws and Regulations Governing the Sale of Eggs in California".

TABLE 22

Tentative U. S. Wholesale Grades for Eggs

U. S. Wholesale Grades	Degree of uniformity in size	U. S. Specials	U. S. Extras or Better	U. S. Standards or Better	U. S. Trades or Better	U. S. Standard Dirties or Better	U. S. Trade Dirties or Better	Maximum number of eggs allowed per half case as tolerance						
										Stained or slightly dirty eggs		Stained or dirty eggs		
		Minimum percentage	Minimum percentage	Minimum percentage	Minimum percentage	Minimum percentage	Minimum percentage	U. S. Trades	U. S. Checks or Cracks	U. S. Standard Dirties	U. S. Trade Dirties or Better	U. S. Standard Dirties	U. S. Trade Dirties or Better	Loss
U. S. No. 1 Specials	Uniform	80	10	Balance				5	5	4	2			2
U. S. No. 2 Specials	Uniform	70	20	Balance				5	5	4	2			2
U. S. No. 3 Specials	Uniform	60	20	Balance				5	5	4	2			3
U. S. No. 4 Specials	Uniform	50	30	Balance				5	5	4	2			3
U. S. No. 1 Extras	Reasonably uniform		80	Balance				9	6	4	2			3
U. S. No. 2 Extras	Reasonably uniform		70	Balance				9	6	4	2			3
U. S. No. 3 Extras	Reasonably uniform		60	Balance				9	6	6	4			4
U. S. No. 4 Extras	Reasonably uniform		50	Balance				9	6	6	4			4
U. S. No. 1 Standards	May be variable			80	Balance				7			8	4	4
U. S. No. 2 Standards	May be variable			70	Balance				7			9	5	4
U. S. No. 3 Standards	May be variable			60	Balance				7			10	6	5
U. S. No. 4 Standards	May be variable			50	Balance				7			11	7	5
U. S. No. 1 Trades	May be greatly variable				80	Balance			9				9	9
U. S. No. 2 Trades	May be greatly variable				70	Balance			9				18	9
U. S. No. 3 Trades	May be greatly variable				60	Balance			9				27	9
U. S. No. 4 Trades	May be greatly variable				50	Balance			9				36	9
U. S. No. 1 Standard Dirties	May be variable					80	Balance		7					4
U. S. No. 2 Standard Dirties	May be variable					70	Balance		7					4
U. S. No. 3 Standard Dirties	May be variable					60	Balance		7					5
U. S. No. 4 Standard Dirties	May be variable					50	Balance		7					5
U. S. Trade Dirties	May be greatly variable						50% or more U. S. Trade Dirties		18					9
U. S. Checks or Cracks	May be greatly variable													9

In this chart the factors of weight and color of shell have not been considered for it seemed best to consider them separately in connection with the formulations of trading rules for those grades that are adopted as trading grades by the wholesale produce and mercantile exchanges. The U. S. Wholesale Egg Grades are applicable to eggs in wholesale trade channels.

Source of data: Table furnished by the Bureau of Agricultural Economics, U. S. D. A.

The total egg capacity of the larger hatcheries in the state is 7,781,342. The capacity of those accredited is 3,414,000 or 43 per cent of the total. Since small hatcheries were not listed, it is estimated* that the total capacity of the state is approximately 8,000,000, and as

NUMBER AND CAPACITY OF COMMERCIAL HATCHERIES, CALIFORNIA, 1926

a. *b.*

Fig. 20.—a. Commercial hatcheries are found in 37 different counties in the state. Each dot represents one hatchery.

b. An incubator capacity of 50,000 eggs in the state is represented by each dot. Sonoma County far outranks all other counties in the state with an incubator capacity of 3,489,000, or over 40 per cent of the capacity of the entire state. Los Angeles County ranks second with slightly over 900,000 egg capacity, followed by Santa Clara with 750,000.

Data from table 23, p. 53.

two or three chicks are sold during the year for each egg capacity, it will be readily seen that this business in California has reached large proportions. It is felt by the author that regular reports, on hatchings, by the hatcheries would prove invaluable in judging the industry's future.

* Estimate by R. B. Easson, Specialist in Agricultural Extension, Poultry (resigned).

TABLE 23

HATCHERIES: NUMBER AND CAPACITY IN CALIFORNIA, 1926. ACCREDITED HATCHERY PROJECTS

County	Hatcheries, 1926	Egg capacity of incubators one filling	Accredited hatchery project in county
Alameda	13	278,000	Yes
Butte	3	23,000	No
Colusa	1	6,000	No
Contra Costa	3	50,400	No
El Dorado	3	4,200	No
Fresno	14	58,500	No
Glenn	6	122,000	Yes
Humboldt	3	48,000	No
Imperial	2	16,000	.....
Kings	2	22,760	No
Los Angeles	29	907,500	Yes
Madera	5	155,000	No
Marin	2	118,640	Yes
Mendocino	2	55,000	No
Merced	6	50,800	No
Monterey	3	7,500	No
Napa	5	75,000	Yes
Orange	17	131,080	Yes
Placer	3	29,000	No
Riverside	7	132,500	Yes
Sacramento	3	165,000	No
San Benito	2	23,000	No
San Bernardino	6	120,500	Yes
San Diego	12	233,859	Yes
San Joaquin	14	108,000	Yes
San Luis Obispo	5	41,160	No
San Mateo	1	125,000	No
Santa Barbara	3	14,712	No
Santa Clara	9	750,000	No
Santa Cruz	5	130,000	Yes
Solano	1	8,000	No
Sonoma	31	3,489,000	Yes
Stanislaus	24	222,840	Yes
Sutter	2	19,600	No
Tehama	8	51,400	No
Tulare	4	34,000	No
Ventura	3	5,200	No
Total	262	7,781,342	

Number of counties having accredited hatcheries	12
Number of hatcheries accredited	135
Capacity of hatcheries accredited	3,414,010
Per cent of total hatchery capacity accredited	43%

Source of data: Compilations furnished author by R. B. Easson, Specialist in Agricultural Extension, Poultry. (Resigned).

RECEIPTS OF EGGS

San Francisco and Los Angeles.—Since 1891 there has been a steady increase in the receipts of eggs on the San Francisco market. The average yearly receipts 1891–1895 totaled 166,059 cases, while the average for 1921–1925 was 802,133 cases. The latter figure was somewhat greater than that for many of the larger egg markets of the country (fig. 26). The peak was reached in 1923 with a total of 854,989 cases. During 1924 and 1925, there was a decided decrease, due perhaps not to a decrease in production or consumption but to the tendency to ship directly from the centers of production to those of consumption. This has been the case especially since the development of processing and storage facilities at the production centers. Though San Francisco is becoming of less importance as a shipping point, the receipts there give rather illuminating evidence on the apparent progress that has been made in the industry of the state. Comparisons between three five-year periods, 1901–1905, 1910–1914, and 1921–1925 (fig. 24) point to a pronounced tendency to a more even distribution of receipts throughout the year, though they continue larger in spring and smaller in fall and winter. This probably has meant an increase in returns to the shippers as the increase has occurred during the period of relatively higher prices—September, October, November, December, and January. The more even distribution throughout the season has tended to raise prices slightly (relatively) during the months of heavy production. The development of cold storage facilities at production centers and direct shipments have also had an effect on San Francisco receipt distribution.

Since the pioneer days of the forties and fifties, California has received eggs from other states and foreign countries. At first they came largely from the New England and Middle Atlantic States and even from China. Since the fifties, Oregon has shipped to California.

At the time of the opening of the transcontinental railroad, dire predictions were made as to the future of California's egg industry and immediately after the railroad's completion, shipments were made from middle western points. The data with reference to the volume of receipts from eastern points were most fragmentary until comparatively recent years.

During 1884, 2,980,254 dozen eggs were received at San Francisco, of which 1,356,250 dozens, or 45.5 per cent, were shipped from outside the state over the Central Pacific Railroad.* In 1901 the volume

* Pacific Rural Press, 31:32, 1886.

of eastern shipments had been decreased materially, as the reports for that year show that of 10,112,010 dozen eggs arriving at San Francisco 1,779,630 dozens, or 17.6 per cent, arrived from eastern points.* Eggs from out-of-state points are still arriving on the San Francisco market, although California has swung into the position of an exporter during the past two decades. During 1925 shipments from outside states

TABLE 24

Monthly Receipts of Eggs by States of Origin, San Francisco, 1925

(Cases)

States	Jan.	Feb.	March	April	May	June	July
California	52,060	46,855	72,649	79,174	63,769	72,049	62,489
Colorado							64
Idaho			1,232	448	1,406	798	1,044
Kansas						400	
Montana							
Nevada		75					
Oregon	380	137	2,744	4,404	2,896	3,915	6,237
Utah					240		
Washington	719			497	566	622	3,636
Total	53,159	47,067	76,625	84,523	68,877	77,784	73,470
1924	57,598	56,200	80,596	82,276	79,345	74,920	72,483
1923	64,855	59,965	94,610	96,950	86,649	91,874	70,077

States	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Per cent of total
California	54,803	50,699	43,783	41,213	46,918	686,461	91.9
Colorado						64	
Idaho	271	423	34	200	450	6,306	.8
Kansas	400					800	.1
Montana	18	384				402	
Nevada				25	205	305	
Oregon	6,329	2,417	3,334	2,454	2,101	37,348	5.0
Utah						240	
Washington	1,799		430	627	1,884	10,780	1.4
Total	63,620	53,923	47,581	44,519	51,558	746,706	
1924	57,109	50,331	50,587	45,861	52,737	760,043	
1923	61,692	54,475	58,129	54,094	61,719	854,989	

Source of data: Mimeographed sheets issued by U. S. D. A., Bureau of Agricultural Economics, San Francisco Office, 1926.

made up 8.1 per cent of the receipts at San Francisco (60,345 cases of the 746,706) most of which originated in states west of the Mississippi River, particularly in Oregon and Washington. These

* Pacific Dairy Review, 1:1,1901.

two states supplied 48,128 cases of the 60,345 originating outside the state in 1925. The first nine months of 1926 show that 14.3 per cent originated outside of California compared with 7.5 per cent in 1925.

TABLE 25

MONTHLY RECEIPTS OF EGGS BY STATES OF ORIGIN, LOS ANGELES, 1925

(Cases)

States	Jan.	Feb.	March	April	May	June	July
California	34,015	37,118	56,937	63,061	64,830	46,913	35,836
Arizona							762
Colorado					1,480	1,646	400
Idaho		101	3,959	7,668	10,196	15,131	8,930
Illinois						176	
Kansas							
Montana					919	960	1,136
Nebraska							420
New York				2			
Oregon	575	130		3,304	5,675	4,823	6,276
Texas						940	856
Utah		2	583	685	3,195	3,334	3,551
Washington	1,524		64		501	635	1,388
Total, 1925	36,114	37,351	61,543	74,720	83,796	74,558	59,555
Total, 1924							

States	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Per cent of total
California	27,261	18,688	23,889	21,912	25,998	456,468	79.4
Arizona					220	982	.2
Colorado						3,526	.6
Idaho	8,666	5,382	304	755	956	62,048	10.8
Illinois						176	
Kansas	880	4				884	.1
Montana						3,015	.5
Nebraska						420	.1
New York						2	
Oregon	141	1,597	541	990		24,052	4.2
Texas	480	480				2,756	.5
Utah	1,560	301	1,138	918	3,446	15,713	2.7
Washington	400		102	35	369	5,018	.9
Total, 1925	39,388	26,452	25,974	24,610	30,989	575,050	
Total, 1924	26,995	11,777	16,556	18,063	9,306		

NOTE.—These figures were not compiled before August 1, 1924.

Source of data: Mimeographed sheet issued by U. S. D. A., Bureau of Agricultural Economics, San Francisco Office, 1926.

During the past two years there has been a tendency to increase the total quantities of outside eggs on the San Francisco market, most of which have arrived during the season of heaviest receipts (fig. 22)—a time when arrivals are heavy on the markets of the country.

EGG RECEIPTS, SAN FRANCISCO, 1922–1925

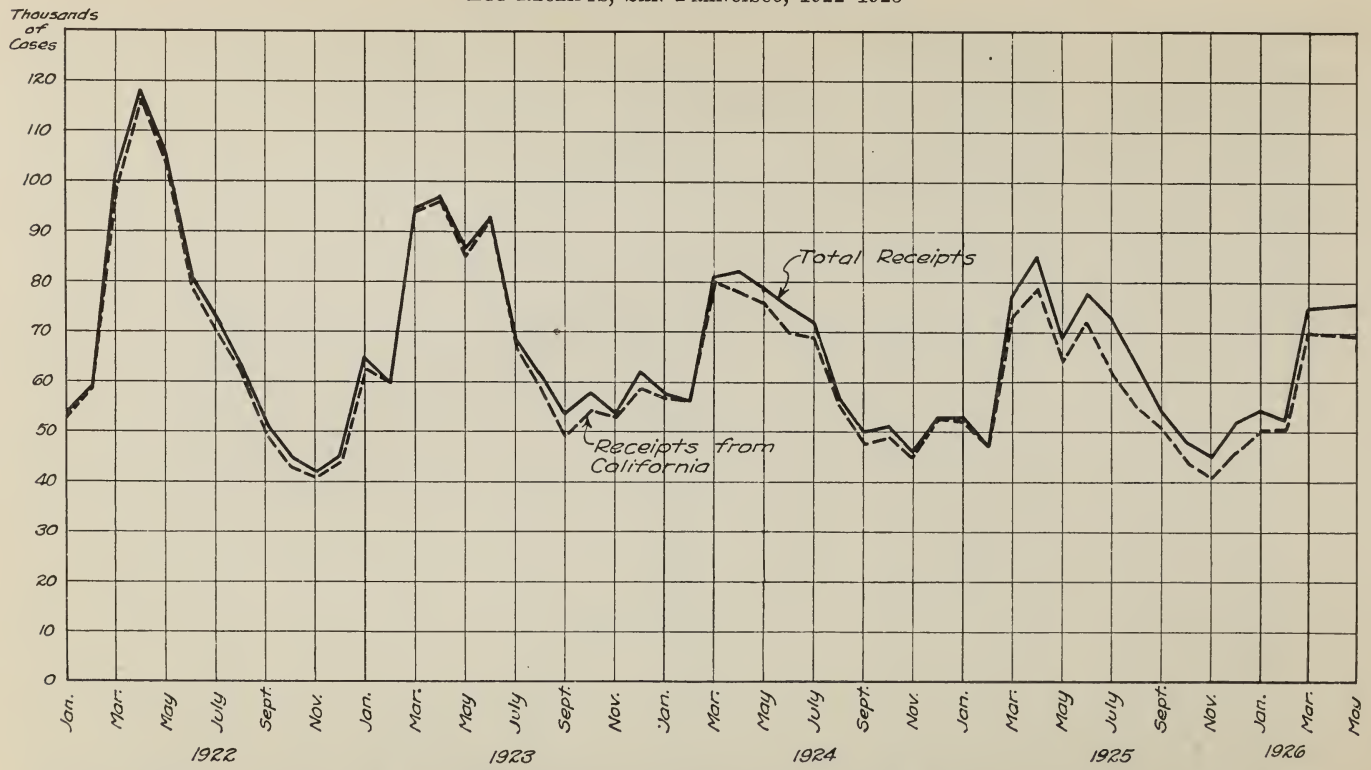

Fig. 22.—California not only exports but imports eggs as the receipts on both the San Francisco and the Los Angeles (fig. 23) markets show. During 1925 the out-of-state shipments to the San Francisco market increased materially. These have come largely from the states of Oregon, Washington and Idaho. The seasonal variation in receipts for the four years can be seen from this figure, April being the high month closely followed by March. November is the low month and is followed by October. It will be of interest to compare with fig. 16, p. 41 "Seasonal Variation in the Price of Fresh Extras at San Francisco."

Data from table 24, p. 55, 1922, 1923, and 1924 receipts from Yearbooks, U. S. D. A.

Unfortunately, Los Angeles returns are available only for 1925. The receipts from out-of-state points at Los Angeles were larger than at San Francisco, amounting to 118,592 cases or 20.6 per cent of a reported total of 575,050. The receipts by truck at Los Angeles offer obstacles to the collection of statistics; hence, the total reported is perhaps too low. Idaho, Oregon, and Utah furnished the bulk of the out-of-state receipts at Los Angeles during 1925 and these arrived chiefly during the period April–August.

Egg Receipts, Los Angeles, 1925, 1926

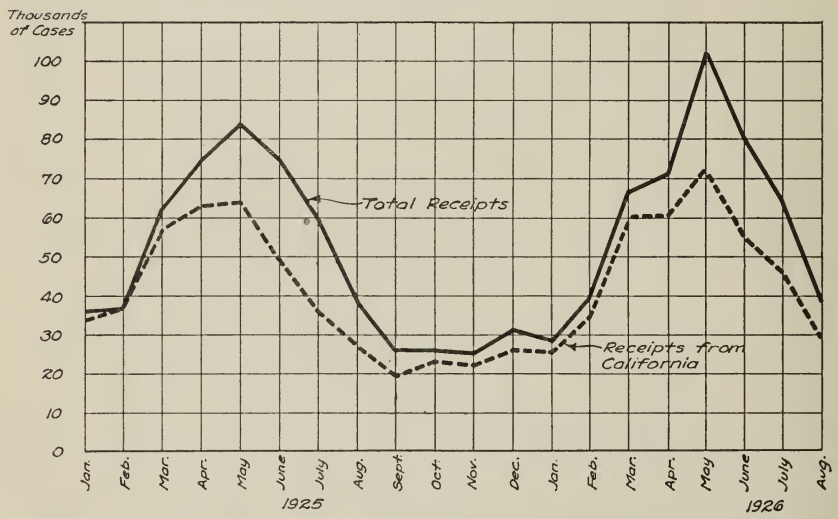

Fig. 23.—Los Angeles is not only the market for large quantities of eggs from the Petaluma area but in addition during 1925 received large shipments from western states, notably Idaho, Utah, and Oregon. The larger number of outside receipts came to market from April to August during the period of relatively high production and low prices. The statistics are undoubtedly incomplete as receipts have been difficult to ascertain in Los Angeles. Data from table 25, p. 56. Current receipts obtainable in Review of the Butter Market at San Francisco, issued by U. S. D. A. Bureau of Agricultural Economics, San Francisco.

The movement of eggs from the states west of the Mississippi will be regulated by the prices obtainable in the various consumption centers of the country. It will be rather difficult for any one center to be far out of line in prices with others because of the ease of transportation. This fact merely emphasizes the necessity of producing "quality" eggs which will command a premium over the ordinary product found on the market.

TABLE 26

Monthly Receipts of Eggs, San Francisco, 1910–1926

(Thousand cases—i.e., 000 omitted)

Month	1910	1911	1912	1913	1914	1915	1916	1917
January	27	38	46	43	32	37	38	56
February	43	42	68	62	44	50	59	77
March	56	67	75	74	89	97	80	91
April	57	81	70	66	79	79	81	93
May	58	72	89	71	74	81	87	91
June	41	46	57	50	58	62	35	77
July	42	56	65	53	49	57	42	58
August	44	56	45	40	51	57	38	41
September	25	36	36	34	31	29	38	38
October	30	36	28	30	32	27	32	38
November	24	30	29	27	34	23	25	27
December	28	29	27	25	37	27	29	32
	475	589	635	575	610	626	584	719

Month	1918	1919	1920	1921	1922	1923	1924	1925	1926
January	53	48	44	58	54	65	58	53	54
February	81	59	55	71	59	60	56	47	52
March	80	73	102	123	102	94	81	77	74
April	93	83	114	109	118	97	82	85	75
May	83	93	80	100	106	87	79	69	72
June	71	80	76	79	81	93	75	78	77
July	51	66	67	62	72	69	72	73	78
August	39	62	55	57	63	61	57	64	56
September	34	42	42	44	51	54	50	54	47
October	27	32	43	40	45	58	51	48	49
November	26	27	36	33	42	54	46	45	.....
December	29	33	43	35	45	62	53	52	.....
	667	698	757	811	838	855	760	747	.....

Source of data: Compilations by author based upon statistics published by the Pacific Dairy Review, San Francisco, during January of each year. Current statistics are published monthly in the Weekly Review of the Butter Market at San Francisco, Bureau of Agricultural Economics.

TABLE 27

EGGS: SEASONAL VARIATION IN RECEIPTS, SAN FRANCISCO, 1901–1905, 1910–1914, 1921–1925

Month	1901–1905	1910–1914	1921–1925
January	58.61	80.35	93.91
February	105.28	115.75	89.30
March	165.92	150.60	144.10
April	166.90	140.44	146.46
May	164.52	142.77	129.58
June	141.28	100.45	121.17
July	97.05	106.36	106.08
August	93.72	106.27	91.99
September	58.01	68.25	76.11
October	47.41	68.19	68.14
November	50.49	61.31	62.49
December	50.80	59.22	70.66
Average	100.00	100.00	100 00

Source of data: Computations by the author based upon Table 26, p. 59. The method used in the above computations is the link relative method.

SEASONAL VARIATION OF EGG RECEIPTS, SAN FRANCISCO

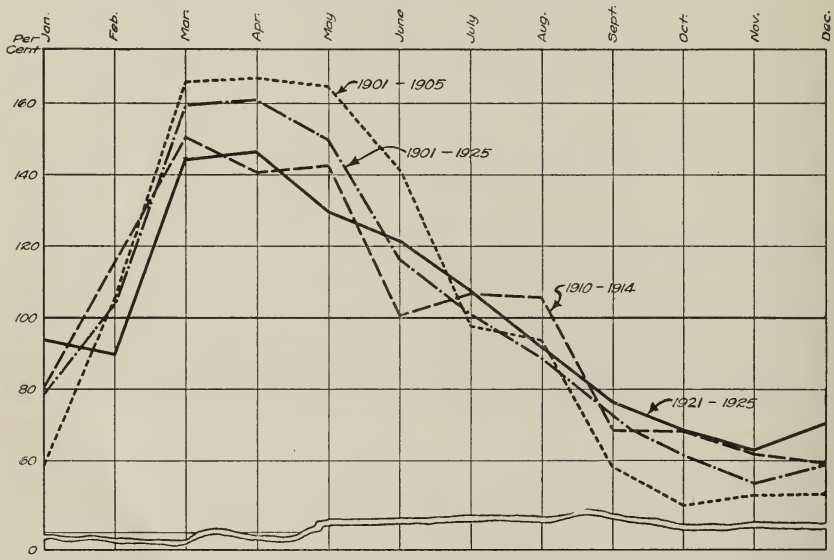

Fig. 24.—There has been a marked tendency during the past few years for a lessening in the seasonal fluctuations indicating a greater proportionate production during the fall and winter months compared with the summer months although increase of storage facilities at centers of production have had some influence especially during the past five years. Data from table 27, p. 60.

Daily receipts and prices of eggs.—The daily receipts of eggs on the San Francisco market are quite evenly distributed among the six days of the week with the exception of Monday, which is naturally the day of largest arrivals. During 1925 shipments arriving on Monday constituted 19.95 per cent of the week's total. Receipts on

Daily Variation in Receipts and Wholesale Prices of Eggs at San Francisco, 1925

(In per cent of total for week)

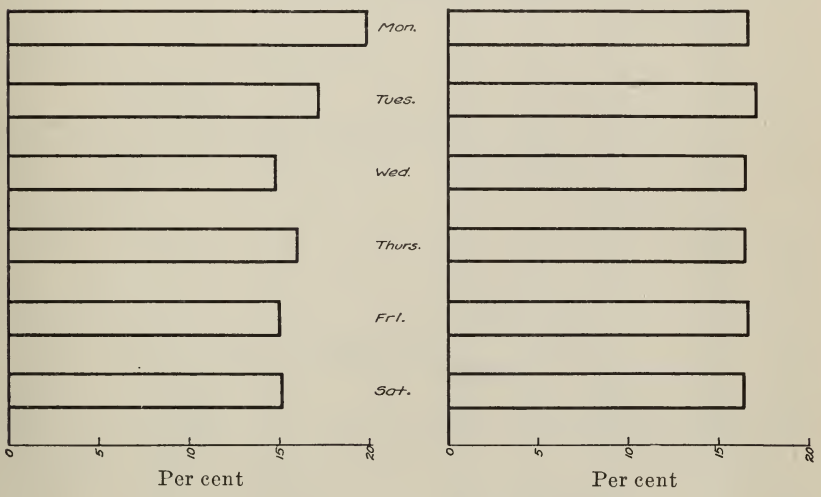

Fig. 25.—Receipts on the San Francisco market were fairly evenly distributed during 1925—Monday and Tuesday being the days of heaviest receipts—Wednesday the lowest. During the year higher prices prevailed on Tuesdays. Differences between the other days of the week were negligible. Data based on Daily Market Reports, Butter, Eggs and Cheese. Bureau of Agricultural Economics, San Francisco.

the remaining days of the week were: Tuesday, 17.20 per cent; Wednesday, 14.83 per cent; Thursday, 16.06 per cent; Friday, 15.04 per cent; Saturday, 15.20 per cent.

Daily fluctuations in prices of extras were slight. Tuesday apparently for 1925 was the day of highest prices.

Prices received were: Monday 16.7 per cent of the week's total, Tuesday 17.0, Wednesday 16.6, Thursday 16.6, Friday 16.6 and Saturday 16.5.

RECEIPTS OF EGGS AT MARKETS IN THE UNITED STATES, 1901–1925

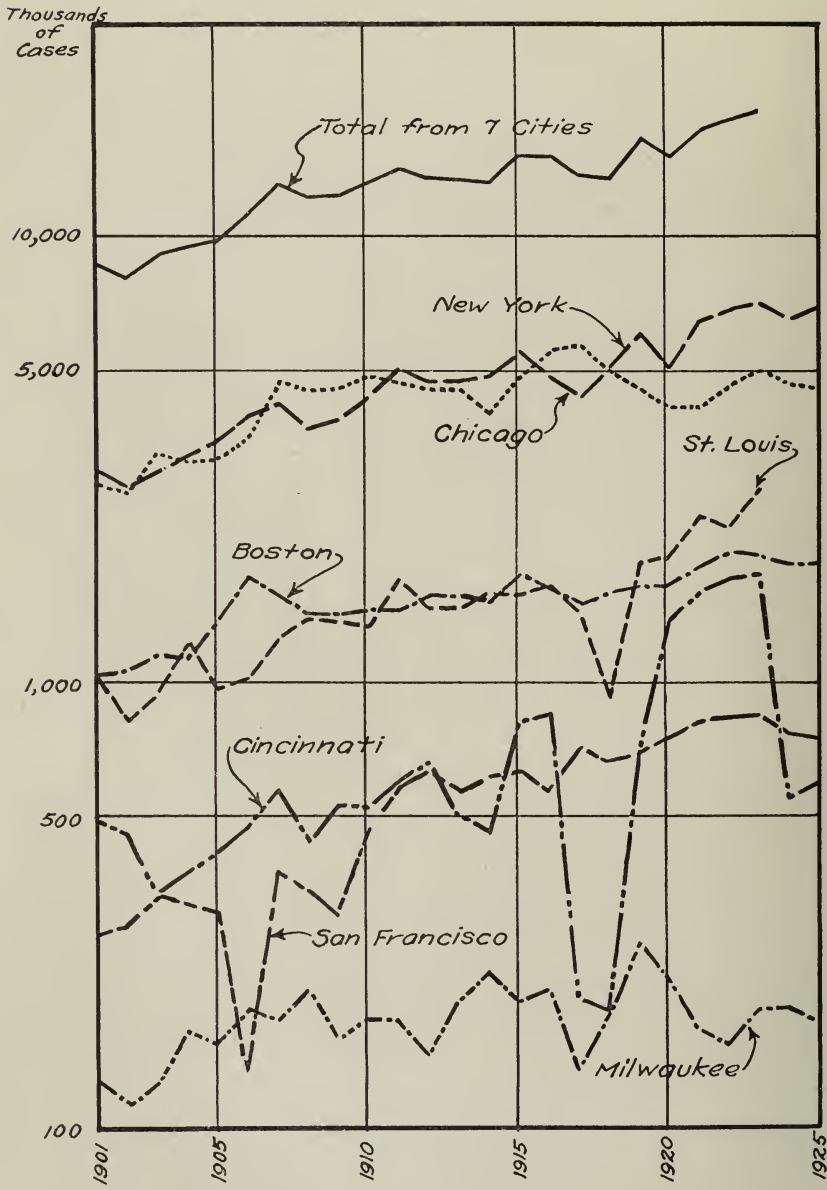

Fig. 26.—New York has been the principal egg market of the country since 1916, with Chicago second in volume of receipts. A general upward trend has taken place in all of the markets although there is considerable variation from year to year. Data from table 28, p. 63.

TABLE 28

EGGS: ANNUAL RECEIPTS AT SEVEN LEADING MARKETS IN THE UNITED STATES 1891–1925

(Thousand cases)

Year	Boston	Chicago	Cincinnati	Milwaukee	New York	St. Louis	San Francisco	Total
Averages:								
1891–1895	722	1,879	289	91	2,114	557	166	5,818
1896–1900	913	2,197	362	113	2,664	852	194	7,296
1901–1905	1,155	2,991	419	140	3,057	1,001	305	9,068
1906–1910	1,518	4,467	509	180	4,046	1,305	335	12,360
1901	1,041	2,784	493	128	2,909	1,023	278	8,655
1902	1,053	2,659	465	115	2,744	826	285	8,147
1903	1,165	3,279	338	129	2,940	960	335	9,147
1904	1,123	3,114	377	166	3,216	1,216	320	9,532
1905	1,395	3,116	421	160	3,478	980	307	9,858
1906	1,710	3,584	484	188	3,981	1,023	137	11,106
1907	1,595	4,780	589	177	4,262	1,289	379	13,071
1908	1,437	4,569	441	208	3,704	1,440	347	12,146
1909	1,417	4,558	520	160	3,904	1,396	340	12,295
1910	1,432	4,844	512	179	4,331	1,376	470	13,193
1911	1,442	4,707	605	175	5,022	1,737	588	14,276
1912	1,580	4,557	669	137	4,724	1,395	639	13,700
1913	1,589	4,594	595	191	4,714	1,398	573	13,654
1914	1,531	4,083	462	225	4,882	1,474	620	13,277
1915	1,758	4,896	812	193	5,585	1,493	630	15,367
1916	1,650	5,453	854	209	4,858	1,522	575	15,120
1917	1,502	5,679	184	135	4,357	1,373	716	13,945
1918	1,604	5,050	177	181	5,027	935	667	13,639
1919	1,659	4,617	704	263	6,078	1,874	698	16,822
1920	1,648	4,154	1,396	219	5,158	1,906	757	15,237
1921	1,823	4,155	1,642	167	6,579	2,406	811	17,584
1922	1,970	4,684	1,703	155	6,821	2,256	838	18,428
1923	1,944	5,009	1,727	183	7,156	2,715	855	19,591
1924	1,827	4,679	550	184	6,894	.....	760	.....
1925	1,833	4,498	600	173	6,542	.....	747	.....

Sources of data: 1891–1923 furnished to the author by the U. S. D. A., Bureau of Agricultural Economics; 1924–1925 for New York, Boston, and Chicago based upon compilations made by the author from the New York Produce Review and American Creamery. 1924–1925 figures for Cincinnati furnished to the author by Cincinnati Produce Exchange. 1924–1925 figures for Milwaukee furnished to author by the Milwaukee Produce Exchange. 1924–1925 figures for San Francisco furnished by the U. S. D. A., Bureau of Agricultural Economics, San Francisco office.

Receipts of extra and pullet eggs.—At the present time, no specific division is made between the receipts of pullets and extras at the principal markets. It has been possible, however, to obtain records from certain large receivers, which will be of interest and value.

The following are the receipts of one large southern California concern, segregated into extras, pullets, and pewees:

TABLE 29

SEGREGATED EGG RECEIPTS OF SOUTHERN CALIFORNIA CONCERN, 1918–1925

Year	Percentage of receipts		
	Extras	Pullets	Pewees or No. 3's
1918*	81.9	17.3	.82
1919**	79.6	18.9	1.5
1920	77.7	20.5	1.8
1921	79.6	18.9	1.5
1922	78.5	19.7	1.8
1923	78.4	19.7	1.9
1924	77.8	20.2	2.0
1925	73.7	23.3	3.0

* Two weeks' receipts missing.
** One week's receipts missing.
Source of data: Information furnished to the author.

Although these are only a portion of the eggs received, some idea at least of the percentage of the various grades produced in the vicinity can be obtained (table 29). These figures are also of interest. because of the decrease in the percentage of extras and the increase in pullets and pewees. This latter increase may be due to an augmentation of certain flocks or to the faulty feeding of mature birds.* In addition, more careful grading is now practiced than in former years. At times in the past dealers refused to accept very small and off-eggs, which are at present received. Heavy culling is more common at present than formerly.

Records have been obtained for partial receipts at San Diego. The percentages there vary slightly from those at Los Angeles. The same general tendencies, however, are evident. The receipts are in the main from the same producers during the three years.

TABLE 30

PARTIAL RECEIPTS OF EGGS BY GRADES, SAN DIEGO, 1923–1925

Year	Per cent of receipts		
	Extras	Pullets	Pewees or No. 3's
1923	81.4	17.4	1.1
1924	75.0	22.9	1.2
1925	76.9	21.1	1.9

Source of data: Information to the author.

* Information from R. B. Easson, Specialist in Agricultural Extension, resigned.

In addition to the receipts in central California segregated by months as in table 32, two additional firms have given the author a partial record of their segregated receipts. For the year, March 1, 1925, to February 28, 1926, one of these, a Petaluma receiver (not included in table 32), reports the following:

Extras	Pullets	Pewees or No. 3's
71.5%	24.1%	4.4%

Another concern has kept records since January 1, 1926, and for the first four months of 1926 the receipts were as follows:

TABLE 31

Partial Receipts of Eggs by Grades by San Francisco Concern, 1926

Month	Per cent of receipts				
	Extras	Pullets	Pewees or No. 3's	Checks	Total
January	77.9	20.2	1.7	.2	100
February	78.2	20.0	1.7	.1	100
March	75.2	22.1	2.5	.2	100
April	72.8	24.1	2.9	.2	100
Total (4 months)	75.7	21.8	2.3	.2	100

Source of data: Information to the author.

From the above compilations and from table 32, a general idea of the segregation into grades can be obtained.

One of the most illuminating tables (table 32) available is that giving the segregation of receipts from certain groups of producers in central California. The volume of these perhaps indicates that the records were representative of the central portion of the state. The receipts are segregated into clean extras, clean pullets, dirty extras, dirty pullets, and others (firsts and thin shells, and No. 3's). Bakers and checks were not obtained for the monthly periods in table 32. Of the 618,873 cases (18,566,190 dozens) received in the above grades in 1923, only 79 per cent were classed as clean extras and pullets. Over one-fifth received were dirty extras, firsts, thin shells and No. 3's. The clean extras amounted to less than 60 per cent of the total (57.8 per cent).

Considerable variation exists among the different months of the year. It will be noted that of the clean extras and pullets, the former are relatively more plentiful in January, February, and March, while pullets are relatively far more numerous during the last four months

TABLE 32

PARTIAL MONTHLY RECEIPTS OF EGGS FROM PRODUCERS IN CENTRAL CALIFORNIA SEGREGATED ACCORDING TO GRADES, 1923–1925

Month	Receipts in thousand cases	Per cent of receipts					
		Clean Extras	Clean Pullets	Dirty Extras	Dirty Pullets	No. 3's or Pewees	Firsts, and Thin Shells
I	II	III	IV	V	VI	VII	VIII
1923							
January	48	57.3	17.8	18.8	4.9	1.1	.1
February	55	62.4	15.9	16.9	3.6	1.0	.2
March	68	65.2	17.7	11.5	3.4	1.7	.5
April	73	60.2	18.5	13.8	4.8	2.1	.6
May	86	63.3	22.2	9.7	2.2	1.9	.7
June	56	64.0	20.7	10.4	2.1	1.9	.9
July	59	57.3	20.0	14.4	3.4	3.3	1.6
August	38	53.3	20.6	14.8	4.1	5.5	1.7
September	32	45.3	23.0	12.7	4.4	12.6	2.0
October	32	45.6	30.5	8.3	4.5	10.4	1.7
November	30	45.1	32.5	11.2	5.4	5.5	.3
December	40	48.8	27.5	15.0	6.0	2.6	.1
Total	619	57.8	21.2	13.1	3.8	3.5	.6
1924							
January	43	55.2	20.8	18.1	4.7	1.2	.....
February	57	56.9	19.2	18.5	4.2	1.2	.....
March	69	57.9	19.6	16.1	4.2	1.7	.5
April	90	54.0	19.3	18.2	5.4	2.4	.7
May	65	52.5	21.7	16.5	5.7	2.8	.8
June	53	53.2	22.7	15.3	5.3	2.9	.6
July	56	52.9	22.2	15.6	4.5	4.2	.6
August	38	53.2	20.4	13.9	3.8	8.1	.6
September	41	48.7	23.2	11.9	3.7	11.9	.6
October	29	44.3	29.2	11.7	5.6	9.0	.2
November	32	46.5	29.2	12.8	7.2	4.3	.....
December	45	51.2	22.5	17.7	6.8	1.8	.....
Total	618	52.2*	21.4*	15.8*	5.0*	3.7*	1.9*
1925							
January	50	56.5	17.7	19.5	5.2	1.1	.....
February	66	53.9	16.1	23.7	5.1	1.2	.....
March	104	56.7	18.2	18.8	4.4	1.7	.2
April	84	53.0	17.9	21.6	5.5	1.9	.1
May	79	51.2	19.4	20.4	6.1	2.6	.3
June	83	52.3	20.2	17.8	5.3	3.8	.6
July	56	48.5	21.2	16.9	5.8	6.8	.8
August	51	46.7	19.9	15.9	5.2	11.7	.6
September	57	44.7	23.4	13.2	5.0	13.5	.2
October	39	43.1	30.2	11.7	5.9	8.9	.2
November	41	42.9	30.1	14.4	7.8	4.7	.1
December	61	43.8	22.8	22.1	8.8	2.4	.1
Total	770	49.7†	20.3†	18.3†	5.6†	4.4†	1.7†

* In addition to monthly receipts segregated above a total of 9,713 cases of bakers' eggs were received during 1924. The percentages were therefore computed on the basis of 627,423 cases—the total receipts of bakers being included in column VIII total percentages.

† In addition to monthly receipts segregated above, a total of 11,642 cases of bakers' eggs were received during 1925. The percentages were therefore computed on the basis of 782,033 cases—the total receipts of bakers being included in column VIII total percentages.

Source of data: Unpublished data furnished to author. All computations by the author.

of the year. Largely on account of this fact, pullet eggs are relatively lower in value during the fall months (table 20, p. 45 and fig. 18, p. 45). The winter months naturally account for a certain proportion of dirties; nevertheless, the number at other times of the year is surprising. Rainfall was of longer duration and of greater magnitude in the spring of 1925 than in the spring of 1924. This condition is reflected in the percentage of dirties. The months of September and October stand out as the months of high numerical and high percentage receipts of No. 3's. Managerial measures increasing the production of clean extras during the fall and winter are financially remunerative to the producer.

Statistics for 1924 and 1925 are not encouraging, as the percentage of clean extras and pullets dropped from 79 per cent of the total receipts in 1923 to 71 per cent in 1925;* clean extras dropped from 57.8 per cent to 50.4* per cent of the total, while the dirty extras were 36.8* per cent as numerous as the clean extras in 1925 (compared with 22.6 per cent in 1923). More careful grading is responsible in part for the results in table 32. These tables are worthy of the most serious and careful thought by those interested in California's poultry industry.

EGG SHIPMENTS

California's interstate egg shipments.—Imports from other states and foreign countries started in the fifties, while the out-of-state shipments are of comparatively recent origin. It was not until the winter of 1911–1912 that the agricultural press† stated, "The state is having a new experience in egg shipments. During the week four cars of eggs have been exported to the frozen East." From this small beginning, shipments and exports have increased to large proportions. Unfortunately, data are not available for the earlier years of this movement. In 1925 interstate shipments totaled 1195 cars, the largest on record, although for the past five years, the tendency has been for shipments to increase only slightly.

Markets for California eggs.—The larger proportion of California eggs is marketed east of the Mississippi River. The Bureau of Agricultural Economics reports the destination of cars loaded in the state and over 95 per cent of these were unloaded east of the Mississippi during 1925 (interstate shipments).

* Percentages computed without taking account of bakers' eggs in order to make data comparable with that for 1923.

† California Cultivator, February 14, 1912.

TABLE 33

Eggs: Monthly Interstate Shipments from California, 1923–1926

(Thousand cases—i.e., 000 omitted)

	1923	1924	1925	1926
January	29	49	69	87
February	29	93	84	79
March	67	36	52	63
April	39	26	26	53
May	33	14	29	35
June	16	6	36	41
July	33	17	39	33
August	41	21	30	45
September	33	29	36	73
October	28	41	64	72
November	38	43	66	.. ..
December	29	64	46	.....

Source of data: Computed by the author on the basis of the Daily Market Reports on Butter, Cheese, Eggs, and Dressed Poultry, issued by the San Francisco Office, Bureau Agricultural Economics. The shipments represent between 95 and 100 per cent of the total interstate shipments. All figures subject to revision.

TABLE 34

Eggs: Interstate Shipments from California, 1925

(Cars)

Destination	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Per cent of total
New York	119	155	45	19	17	22	56	42	57	100	93	116	841	71.7
New Jersey	.....	4	43	22	18	34	11	9	.....	.....	1	.....	142	12.1
Pennsylvania	.....	3	2	3	15	2	3	1	3	.....	.....	7	39	3.3
Massachusetts	.....	.....	2	.....	4	3	.....	1	.....	.....	1	1	12	1.0
Connecticut	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	2	3	.3
District of Columbia	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	1	.1
Michigan	2	.....	4	.....	.....	.....	.....	.....	.....	.....	3	.....	9	.8
Illinois	4	.....	3	3	2	5	1	1	2	1	6	3	31	2.7
Nebraska	.....	.....	2	1	.....	1	.....	.....	.....	1	1	.....	6	.5
Ohio	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.1
Missouri	.....	.....	.....	.....	.....	1	3	.....	.....	1	1	.....	6	.5
Maryland	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.1
Tennessee	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	3	1	5	.4
Alabama	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	8	1	12	1.0
Virginia	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	.3
Florida	1	.....	.....	1	.....	1	1	2	4	5	8	9	32	2.8
Louisiana	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	2	.2
Texas	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	.....	1	4	.3
Nevada	.....	.....	.....	.....	.....	1	.....	1	.....	.....	.....	.....	2	.2
Arizona	.....	.....	.....	.....	.....	.....	2	1	3	7	4	4	21	1.8
	130	163	101	50	56	70	77	58	70	123	130	146	1,174	

Source: Computations by author based upon mimeographed Daily Market Reports on Butter, Cheese, Eggs and Dressed Poultry, issued by the San Francisco Office, Bureau Agricultural Economics. The shipments are for 1,174 cars out of a total of 1,195. All figures subject to revision.

There has been a marked tendency for a wider distribution of California eggs during the past two years. During 1923 these were unloaded in ten states, while in 1924 this number increased to twelve. In 1925 shipments were made to nineteen different states and the District of Columbia.

There has been during the past year a considerable movement into the Southern States (Texas, Louisiana, Florida, Virginia, Maryland, Alabama, Tennessee), together with an increase to certain of the Middle Western States (Missouri, Michigan, Illinois, Nebraska and Ohio). These two movements have also been accompanied by a wider distribution of eggs from this state on the north Atlantic seaboard (Massachusetts, Connecticut, New York, New Jersey and Pennsylvania), (table 34, p. 68), although the tendency has been more marked in increasing shipments to the middle west.

New York is the most important out of state market for California eggs and during 1925 took approximately 70 per cent of the interstate shipments table 34, p. 68). New Jersey was the second market, its receipts from this state being approximately 12 per cent of the total interstate shipments. New Jersey should be considered as part of the New York market as eggs are often unloaded in New Jersey terminals.

Efforts are being made in a number of markets outside of New York to develop a demand for a white egg of highest quality.

Shipping districts for eggs in California.—The principal points of origin for interstate shipments are Petaluma, Santa Rosa, Santa Cruz, San Francisco, Sacramento, Los Angeles, San Diego, Modesto, and

TABLE 35

Eggs: Interstate Shipments from California Points, 1920–1925

(Cars)

Origin	1920	1921	1922	1923	1924	1925
San Francisco	.....	214	114	103	73	63
Petaluma	.....	744	615	694	639	889
Santa Rosa	.....	.....	.....	53	62	98
Sacramento	.....	.....	.....	.....	21	35
Oakland	.....	.....	.....	.....	3	3
Santa Cruz	.....	38(Misc.)*	20	13	17	70
Los Angeles	.....	70	32	18	29	25
San Diego	.....	45	38	18	8	5
Modesto	.....	.....	.....	.....	.....	5
Salinas	.....	.....	.....	.....	.....	1
Riverside	.....	.....	.....	.....	.....	1
Total	920	1,111	819	899	852	1,195

* The 38 cars represent shipments from Santa Cruz plus other California points not listed.
Source of data: 1920 U. S. D. A. Crops and Markets, 1922, p. 526; 1921–1925, mimeographed Daily Market Report on Butter, Cheese, Eggs and Dressed Poultry, San Francisco. No. 12, 1926.

Oakland (table 35, p. 69). Indications point to a decrease in eastern shipments from the large cities of the state and a corresponding increase in the shipments from points nearest production centers. This has come about through the development of cold storage facilities in production centers, the necessity for applying processing as soon after laying as possible, and the saving of time and expense in shipments. All of these factors make for a shipping product of higher quality. Obviously, the decrease in eastern shipments from the larger centers of population may be accounted for by the increasing population of these cities. Santa Rosa, Santa Cruz, and Sacramento especially stand out in connection with the increase in cars loaded for interstate shipment.

Egg shipments from Petaluma.—Petaluma far outdistances every other shipping point in the number of eggs shipped. From 1900 to 1921, the rate of increase was very rapid; from 1921 to 1925, it has been proportionately less rapid than during the war and pre-war period.

A study of the graph (fig. 28, p. 72) gives a very clear indication of the relatively large spring and the small winter and fall shipments. This variation is more noticeable in the 1910–1914 period than in the 1921–1925 period. The season of above-normal shipments coincides with the period of low prices, while the season of below-normal shipments coincides with increased prices.

Such a condition is what might naturally be expected because of supply and demand. Similar reasoning might indicate that there would be little benefit to the poultryman in bringing about an equalization of production throughout the year. However, since California's contribution to the egg supply of the United States is not a prime factor in setting the price level, and since there is little likelihood of any such equalization in the largest producing areas of the country because of the greater seasonal changes in climate, advantage would accrue to the California poultryman from an increased fall and winter production. Egg shipments are somewhat indicative of production in the Petaluma district, and a realization of the advantage of higher fall and winter production is expressed by the marked difference in the curves. Whereas, the peak of shipments in 1910–1914 was 160 per cent of normal; in 1921–1925, it was only 128 per cent. For the former period, "low" was 57 per cent normal; for the latter period, 80 per cent. The significant point is not so much the lowering of the high peak, as it is the raising of shipments in those months in which a high price obtains. Moreover, this has not been accomplished at the

expense of lowering the yearly production; as the latter, on the contrary, has been on the increase. The real explanation is that a re-distribution of the production has caused the change in shipments, advantageous to the producer. Some of these changes have been

Shipments of Eggs, 1905–1925, and Poultry, 1905–1923, from Petaluma

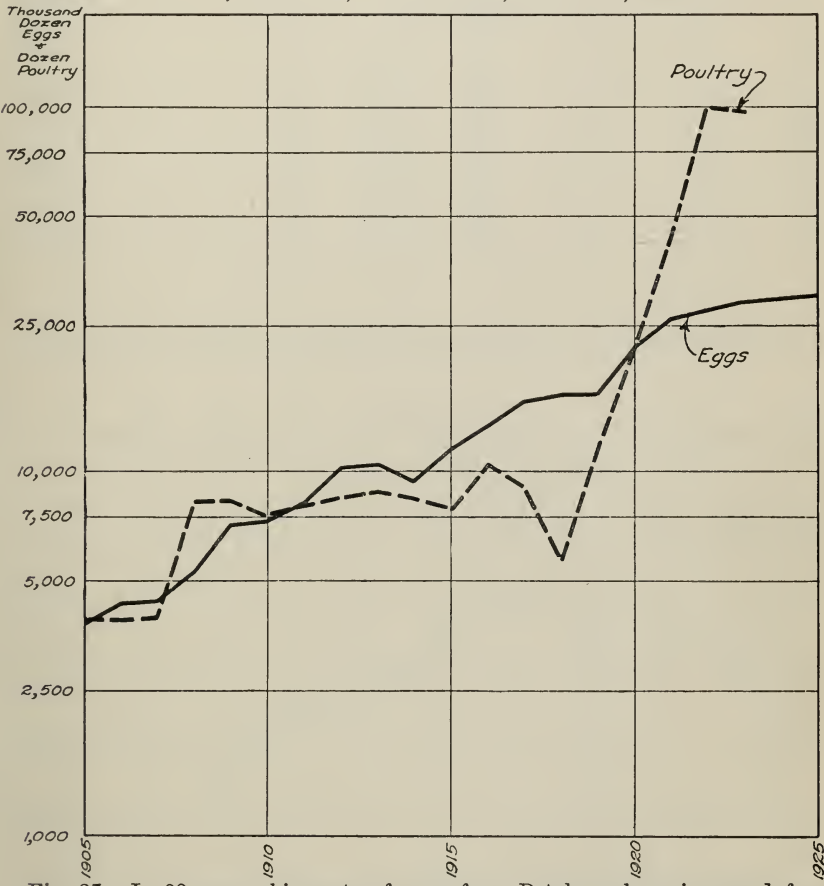

Fig. 27.—In 22 years shipments of eggs from Petaluma have increased from 3,407,333 dozen eggs to over 30,000,000. More rapid than the increase in the egg shipments has been the phenomenal increase in the shipments of poultry since 1919. Data for poultry shipments for 1924 and 1925 is incomplete. Data from table 36, p. 72, and table 64, p. 108.

brought about by the availability of increased storage facilities at Petaluma.

For five months in the 1921–1925 period the relative seasonal variations of shipments were below those of the 1910–1914 period, while in one month they were practically the same and in six months higher. These facts indicate a relatively higher production in July, August, September, October, November, December, and January.

TABLE 36

EGGS: SHIPMENTS FROM PETALUMA, 1903–1925

Year	Thousand dozens	Year	Thousand dozens
1903	3,407	1912	10,232
1904	3,493	1913	10,465
1905	3,867	1914	9,432
1906	4,334	1915	11,681
1907	4,423	1916	13,102
1908	5,313	1917	15,552
1909	7,159	1918	16,046
1910	7,288	1919	16,047
1911	8,134	1920	22,224

INDICES OF SEASONAL VARIATION IN SHIPMENTS OF EGGS FROM PETALUMA, 1910–1914 AND 1921–1925

Fig. 28.—The graph shows the variation throughout the year in the shipments of eggs from Petaluma for the five-year periods of 1910–1914 and 1921–1925. The heavy horizontal or normal line represents shipments which would be uniform throughout the year and deviations above the line show an increase above normal shipments while deviations below the line show a decrease from the normal. A study of the graph gives a very clear indication of the large spring shipments and the relatively small fall and winter shipments. This is more noticeable in the 1910–1914 period than for the 1921–1924 period. The season of above normal shipments coincides with the period of low prices while the season of below normal shipments is coincident with that of increased prices. Data from table 38, p. 73.

TABLE 37

MONTHLY EGG SHIPMENTS FROM PETALUMA, 1921–1925

(Thousand dozens—i.e., 000 omitted)

Month	1921	1922	1923	1924	1925	1926
January	1,899	1,858	2,071	2,339	2,360	2,737
February	2,329	2,386	2,862	2,845	2,685	2,910
March	3,246	2,781	3,131	2,966	3,016	2,612
April	3,378	3,169	2,653	3,063	2,578	2,667
May	3,164	3,119	2,644	2,471	2,158	
June	2,583	2,785	2,586	2,231	2,476	3,251
July	2,152	2,342	2,364	2,271	2,597	2,495
August	1,906	1,973	2,196	1,991	2,061	
September	1,620	1,621	2,017	2,114	2,406	
October	1,540	1,947	2,101	2,438	2,492	
November	1,544	1,614	2,351	2,351	2,423	
December	1,594	1,727	2,256	2,593	2,847	
Total	26,054	27,321	29,202	29,672	30,099	

Source of data: Furnished to author by the editor of the Petaluma Weekly Poultry Journal.

TABLE 38

EGGS: SEASONAL VARIATION IN SHIPMENTS FROM PETALUMA, 1910–1914 AND 1921–1925

Month	1910–1914	1921–1925
January	72.3	90.3
February	121.0	110.7
March	153.9	124.4
April	160.3	128.4
May	138.8	120.3
June	109.6	108.6
July	94.9	99.3
August	93.9	87.0
September	69.6	80.0
October	65.2	83.3
November	57.3	81.0
December	63.2	86.7
Average	100.	100.

Source of data: Computations by the author on the basis of the monthly shipments of eggs from Petaluma furnished by the Petaluma Weekly Poultry Journal (Table 37; 1910–1914 monthly figures in possession of author). Both sets of indices were computed by the link relative method. On the basis of 100 for each month the shipments during April of the period 1910–1914 were 60.3 per cent above the average of 100, etc.

The New York market.—The New York market has been by far the most important eastern market for all Pacific Coast eggs including those from California.

During 1925 eggs from thirty-two different states, located in every geographical division of the United States (table 39, p. 74) were received on this market. The largest part of the supply came

from the Mississippi Valley states. During 1925 the states in which the larger portion of New York's receipts originated were: Illinois,

TABLE 39

EGGS: RECEIPTS AT NEW YORK CITY BY STATES OF ORIGIN, 1925

(Thousand cases—i.e., 000 omitted)

States	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total*	Per cent of total
Arkansas	1	3	2	1	1	1	.....	.....	.....	.....	.....	1	10	.1
California	48	77	62	17	16	27	26	24	23	37	44	56	456	6.6
Connecticut	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	3	.....
Delaware	4	7	10	12	11	10	8	5	4	3	2	4	80	1.2
Idaho	.....	1	2	.....	.....	.....	6	.....	.....	.....	.....	.....	10	.1
Illinois	56	79	170	251	182	150	101	89	72	60	24	25	1258	18.3
Indiana	15	30	68	117	85	79	48	42	31	28	8	16	568	8.2
Iowa	9	31	73	172	130	152	91	100	97	44	13	13	924	13.4
Kansas	9	23	36	30	17	22	14	10	9	9	6	11	197	2.9
Kentucky	3	9	20	19	5	5	3	2	1	3	1	2	74	1.1
Maryland	6	10	17	19	15	12	11	9	6	4	3	6	118	1.7
Massachusetts	5	.....	.....	1	.....	1	2	1	.....	.....	.....	1	13	.2
Michigan	4	4	2	12	13	10	6	7	5	4	1	1	70	1.0
Minnesota	3	6	19	41	40	43	27	25	25	10	3	4	246	3.6
Missouri	18	43	54	77	29	35	17	21	19	16	13	22	364	5.3
Nebraska	2	5	10	15	2	8	2	3	1	5	1	2	56	.8
New Jersey	15	20	30	29	28	22	15	12	11	8	10	16	216	3.1
New York	45	44	73	104	100	96	65	47	38	26	19	32	688	10.0
North Carolina	.....	1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	.1
North Dakota	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Ohio	6	11	26	62	55	50	30	29	23	18	5	10	324	4.7
Oklahoma	1	8	7	.....	1	.....	.....	.....	.....	1	.....	.....	19	.3
Oregon	5	9	6	4	6	2	1	3	2	5	4	8	54	.8
Pennsylvania	11	14	27	33	34	32	27	22	20	10	5	11	244	3.5
South Dakota	.....	.....	1	3	3	2	.....	.....	1	1	1	1	14	.2
Tennessee	10	41	60	30	23	11	4	2	2	2	2	4	189	2.8
Texas	.....	8	15	1	.....	.....	.....	.....	.....	.....	.....	.....	25	.4
Utah	2	6	7	4	2	1	1	.....	2	1	4	10	41	.6
Virginia	5	9	19	18	14	8	5	4	3	2	1	3	92	1.3
Washington	35	39	32	17	30	30	26	23	23	26	36	59	375	5.4
West Virginia	.....	1	1	1	1	1	.....	.....	.....	.....	.....	.....	5	.1
Wisconsin	1	2	11	16	18	20	9	3	5	3	1	1	90	1.3
Parcel Post	3	3	5	6	6	5	4	4	3	2	2	2	45	.7
Miscellaneous	2	4	4	4	1	2	.....	1	.....	.....	.....	1	20	.3
Totals—1925	325	550	872	1115	871	838	550	490	427	328	208	320	6894	
1924	301	410	717	1082	970	789	599	429	405	361	221	259	6542	
1923	386	447	981	924	1163	796	596	527	416	377	270	272	7156	
1922	335	425	919	1160	993	784	592	427	381	337	226	242	6821	
1921	314	476	999	1012	742	681	525	517	440	362	251	260	6579	

* Since all figures are not given in thousands, totals for years may not exactly equal sum of shipments for various months.

Source of data: Mimeographed sheet issued by U. S. D. A., Bureau Agricultural Economics, New York Office, 1926.

Iowa, New York, Indiana, California, Washington, Missouri, Ohio, Minnesota, Pennsylvania (see table 39).

While California competes not only with every other state and foreign country shipping eggs to New York, the more direct competi-

tion is with those sections producing a white product which commands a premium over the brown and mixed lots (table 40, p. 76).

The two outstanding competitors of California on this market are (*a*) those states near to New York City (New York, New Jersey, Pennsylvania, Delaware, Maryland and the New England states)—table 40, p. 76, and (*b*) the Pacific Coast states of Washington and Oregon. The states of Utah and Idaho are grouped with Washington and Oregon in the discussion of this competition.

There has been a steady increase in the receipts from the Pacific Coast (plus Utah and Idaho) both in quantity and in the percentage of the total receipts (fig. 30). Table 41, page 77 shows the total yearly receipts from the Pacific Coast states. The average prices received represent those for white eggs and brown or mixed eggs.

The heaviest shipments of eggs to New York occur during the seven months, February-August, inclusive. During these months 76 per cent of the receipts arrive (76 per cent, 1925; 76 per cent, 1924; 76 per cent, 1923; 77 per cent, 1922; 75 per cent, 1921; 75 per cent, 1920).

The bulk of the shipments of Pacific Coast eggs, both in quantity and percentage especially during the past two years has been received from October to March, inclusive (table 43, p. 79).

During 1925, two-thirds of the Pacific Coast receipts (66 per cent) arrived during the winter half year (1924, 70 per cent). The receipts from California have followed the same general seasonal variation as those from the remaining Pacific Coast area, although the percentage of receipts from California during the winter half-year has been slightly higher than the above mentioned (1925, 71 per cent; 1924, 78 per cent). Oregon and Washington especially have had less of a seasonal variation in interstate shipments, maintaining relatively higher levels during the summer months. The shipments from California during the fall and winter are high in comparison with actual egg production. Many eastern buyers store eggs in the spring for shipment in the fall and winter. Fresh eggs are used in the fall as local buyers store their own supply in the spring. Oregon and Washington produce relatively far more eggs for export than California. Receipts at producers associations in the two former states indicate a more even production throughout the year.

During the past year (1925–26) there has been a material increase in New York's supply of white eggs from the Pacific Coast. Notwithstanding the influx of this greater quantity, both actually and relatively to the total supply, the price obtained for them showed an

average gain over 1924 as compared with that of western firsts (table 41, p. 77). The greatest premiums of Pacific Coast whites over western firsts are usually obtained in the period July to November, this excess being especially noteworthy in November, because arrivals of white eggs on the New York market from points nearby are relatively small at this time.

TABLE 40

RECEIPT OF EGGS, NEW YORK CITY, FROM STATES NEAR TO NEW YORK CITY, 12 MONTHS ENDING FEBRUARY 28, 1923–1926

State	1925–26		1924–25		1923–24		1922–23	
	Thousand cases	Per cent	Thousand cases	Per cent	Thousand cases	Per cent	Thousand cases	Per cent
New York	681	49.0	621	46.5	655	47.7	507	45.5
New Jersey	214	15.4	215	16.2	210	15.3	158	14.2
Pennsylvania	255	18.3	255	19.1	246	17.9	265	23.8
Delaware	74	5.3	73	5.5	69	5.0	53	5.0
Maryland	111	8.0	113	8.4	127	9.4	90	8.2
New England	10	.8	6	.5	5	.4		
Connecticut	44	3.2	51	3.8	58	4.3	4	.4
Parcel Post							32	2.9
Total	1,389	100	1,334	100	1,370	100	1,109	100

Source of data: From February and March numbers of the New York Dairy Produce Review and American Creamery.

SEASONAL VARIATIONS IN THE INTERSTATE SHIPMENTS OF EGGS FROM CALIFORNIA, 1923–1926

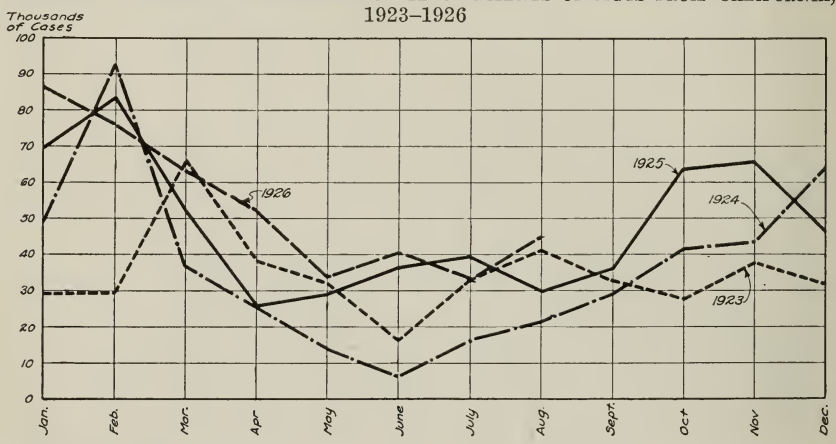

Fig. 29.—The largest shipments of eggs have been made from California from October to March during the past three years. It would be fortunate for the egg producer if a greater fall production could be brought about. The shipments in March and April in spite of the low relative price tend to prevent the price from declining further (table 33, p. 68).

TABLE 41

Egg Receipts at New York from the Pacific Coast and Comparative Wholesale Prices for Western Firsts and Pacific Coast Whites, 1920–1926

Year Mar. 1-Feb. 28	Receipts from Pacific Coast (thousand cases)	Percentage of total New York receipts	Wholesale prices		Difference between IV and V
			Western Firsts	Pacific Coast Whites	
I	II	III	IV	V	VI
1920-21	403	7.0	55.13	68.16	13.02
1921-22	513	8.5	37.99	52.07	14.59
1922-23	576	8.3	34.92	46.89	11.97
1923-24	757	10.8	24.85	45.99	11.14
1924-25	733	10.9	37.85	47.28	9.43
1925-26	968	14.1	37.19	48.29	11.10

Source of data: From February and March numbers of the New York Dairy Produce Review and American Creamery.

Competition with the other Pacific Coast states in supplying this market has been particularly keen. During the past few years the other western states, especially Washington and Oregon, have been increasing their shipments more rapidly than California (fig. 32, p. 82 and table 42, p. 77). During the twelve months ending February 28, 1926, Washington crowded California for first place in shipments from the Pacific Coast, California supplying 44.6 per cent of this total, and Washington 43.1 per cent. The proportion of the receipts furnished by the various western states is shown by the following table:

TABLE 42

Receipts of Eggs, New York City, from Pacific Coast States, 12 Months Ending February 28, 1923–1926

	1925-26		1924-25		1923-24		1922-23	
	Thousand cases	Per cent	Thousand cases	Per cent	Thousand cases	Per cent	Thousand cases	Per cent
California	432	44.6	368	50.3	440	58.1	374	65.0
Washington	418	43.1	273	37.3	257	33.9	184	32.0
Oregon	59	6.1	46	6.2	39	5.1	17	3.0
Utah	51	5.3	41	5.6	21	2.9	.....	.....
Idaho	9	.9	5	.6	.....	.....	.....	.....
Total	969	100	733	100	757	100	575	100

Sources of data: From February and March numbers of the New York Dairy Produce Review and American Creamery.

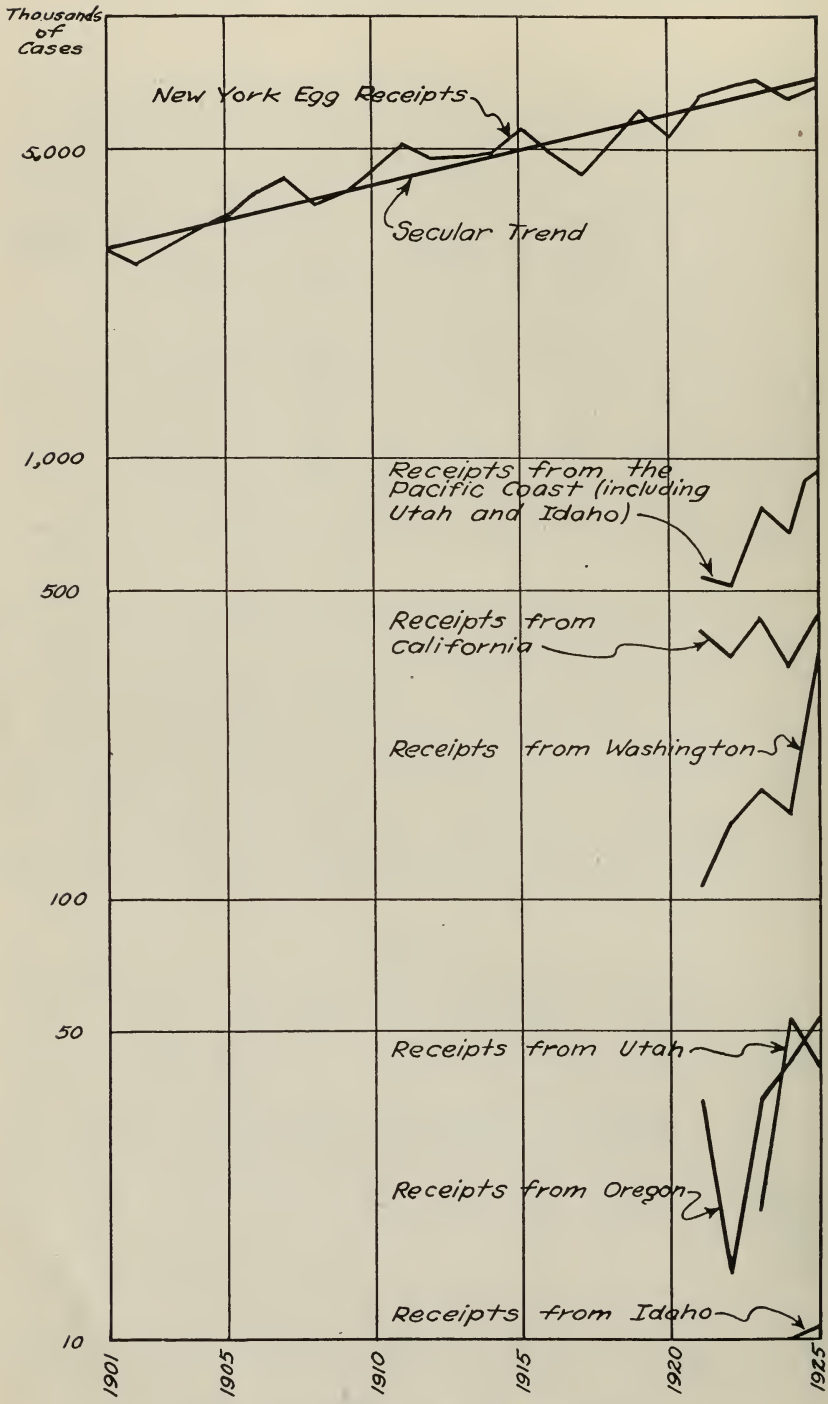

Fig. 30.—See description on bottom of page 79.

TABLE 43

MONTHLY RECEIPTS OF EGGS FROM THE PACIFIC COAST AT NEW YORK; AVERAGE WHOLESALE PRICES OF WESTERN FIRSTS AND WHITE EGGS, MARCH, 1920–OCTOBER, 1926

Month	Total receipts (thousand cases) I	Receipts from Pacific Coast (thousand cases) II	Per cent of receipts from Pacific Coast III	Receipts from California (thousand cases) IV	Per cent of receipts from California V	Average prices (cents per dozen)		
						Western Firsts VI	Whites* VII	Difference VIII
1920								
March	618	65	11			48.26	55.83	7.57
April	563	28	5			43.80	52.00	8.20
May	697	16	2			44.28	50.12	5.84
June	725	24	3			42.99	52.23	9.24
July	470	31	6			46.88	61.06	14.18
August	370	28	7			51.04	66.54	15.50
September	334	17	4			56.76	77.16	20.40
October	272	19	6			63.82	91.46	27.64
November	209	13	5			76.96	96.77	19.81
December	211	32	10			78.17	90.40	12.23
1921								
January	314	64	21			66.83	72.36	5.53
February	476	66	14			41.82	51.93	10.11
March	999	86	9			30.56	40.15	9.59
April	1,012	33	3			27.06	34.15	7.09
May	742	36	5			24.67	31.42	6.75
June	681	32	4			26.70	34.50	7.80
July	525	41	8			33.26	45.94	12.68
August	517	44	8			35.32	52.67	17.35
September	440	33	7			38.98	61.00	22.02
October	362	32	9			49.00	69.72	20.72
November	251	28	10			58.15	83.17	25.02
December	260	36	12			53.89	77.04	23.15
1922								
January	335	43	13.5	23	6.9	40.93	49.78	8.85
February	424	68	15.3	51	12.0	37.36	45.26	14.08
March	919	104	11.1	65	7.1	25.22	31.76	6.54
April	1,178	22	1.9	14	1.2	25.94	32.28	6.34
May	994	31	3.	20	2.0	26.59	31.27	4.68
June	784	36	4.3	24	3.1	24.69	33.98	9.29
July	574	40	7.1	25	4.4	24.18	35.28	11.1
August	427	26	6.	17	4.0	25.62	40.25	14.63
September	381	23	6.3	22	5.8	38.78	54.10	15.32
October	337	39	11.8	26	7.7	43.26	70.18	26.92
November	226	53	23.1	41	18.1	52.92	75.49	22.57
December	242	49	19.5	26	10.7	52.96	64.24	11.28

* Average price of white eggs covers firsts to extras (New York).

Fig. 30.—Receipts of eggs from the Pacific Coast States (including Utah and Idaho) on the New York market have increased proportionately more rapidly than the total volume of receipts. There has not been a pronounced tendency for the receipts from California to increase. The receipts from the State of Washington have increased relatively more rapidly than the total receipts on the New York market and in addition more rapidly than the total volume of receipts from the Pacific Coast and far more rapidly than the receipts from California. The general tendency has been for Oregon to increase shipments since 1922. Utah receipts show a considerable volume and in 1925 receipts from Idaho are above 10,000 cases.* (Tables 39, 43, pages 74, 79.)

* Equation for line of trend is $\log y = 2.66 + .016\,x$.

TABLE 43—(*Concluded*)

Month	Total receipts (thousand cases) I	Receipts from Pacific Coast (thousand cases) II	Per cent of receipts from Pacific Coast III	Receipts from California (thousand cases) IV	Per cent of receipts from California V	Average prices (cents per dozen)		
						Western Firsts VI	Whites* VII	Difference VIII
1923								
January	386	65	16.8	26	6.7	41.94	50.56	8.62
February	447	87	19.5	53	11.9	36.94	43.30	6.36
March	981	123	12.5	94	9.6	30.81	37.83	7.02
April	924	51	5.5	27	2.9	27.39	35.71	8.32
May	1,163	50	4.3	35	3.0	27.34	35.41	8.07
June	796	33	4.2	14	1.8	24.21	33.87	9.66
July	596	56	9.5	31	5.2	25.16	35.79	10.63
August	528	67	12.7	36	6.8	28.79	41.96	13.17
September	416	49	11.9	31	7.5	35.78	48.71	12.93
October	377	39	10.3	21	5.6	38.50	63.17	25.25
November	270	68	25.2	33	12.2	52.79	69.75	16.96
December	272	65	24.0	29	10.7	47.24	58.25	11.01
1924								
January	301	57	19.0	22	7.3	41.60	49.00	7.40
February	410	98	23.8	67	16.4	38.63	42.50	3.87
March	717	103	14.3	53	7.4	24.49	31.04	6.55
April	1,082	36	4.7	14	1.3	24.18	32.54	8.36
May	970	40	4.1	15	1.5	25.13	32.25	7.12
June	789	26	3.3	5	.7	27.08	34.14	7.06
July	599	31	5.3	11	1.9	28.07	36.26	8.19
August	429	30	7.0	16	3.8	32.69	43.02	10.33
September	405	37	9.2	13	3.2	39.06	52.73	13.67
October	361	54	14.9	30	8.3	43 85	64.38	20.53
November	221	64	29.0	35	15.8	52.37	69.74	17.37
December	259	95	36.6	50	19.3	57.06	63.54	6.48
1925								
January	325	90	27.7	48	14.6	58.17	62.21	4.04
February	550	126	23.0	77	14.0	42.03	45.46	3.43
March	872	109	12.5	62	7.11	30.42	37.86	7.44
April	1,115	41	3.7	17	1.5	29.37	37.88	8.51
May	871	55	6.3	16	1.9	31.50	39.04	7.54
June	838	60	7.1	27	3.2	32.60	41.67	9.07
July	550	60	10.9	26	4.7	33.45	44.30	10.85
August	490	51	10.3	24	4.9	32.88	45.74	12.86
September	427	50	11.1	23	5.4	36.62	54.06	17.44
October	328	70	21.2	36	11.1	43.39	68.37	24.98
November	208	88	42.2	44	21.2	57.29	70.16	12.87
December	320	131	41.1	56	17.4	49.37	56.87	7.50
1926								
January	393	131	33.4	45	11.5	38.18	44.08	5.90
February	471	122	26.0	55	11.6	31.20	39.42	8.22
March	813	107	12.7	49	6.0			
April	860	59	6.8	22	2.5			
May	868	49	5.7	16	1.8			
June	872	64	7.3	26	3.0			
July	579	56	9.7	23	4.0			
August	502	53	10.7	20	3.9			
September	433	82	19.0	39	8.9			
October	345	99	28.9	44	12.8			

* Average price of white eggs covers firsts to extras (New York).

Sources of data: 1920-1925 from March numbers of the New York Produce Review and American Creamery. 1926, Current data from Market News Service, Bureau of Agricultural Economics, New York City.

Receipts of Eggs, New York, 1922–1926

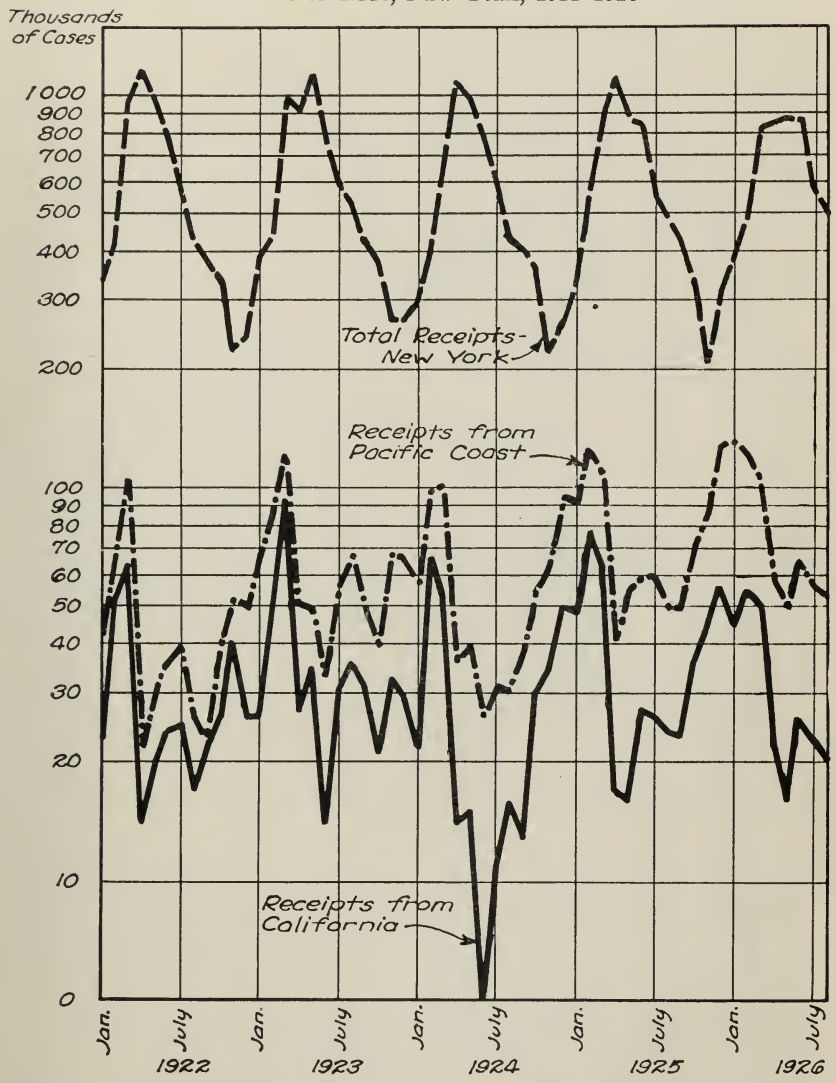

Fig. 31.—While California eggs compete with those of 31 other states on the New York market, the more direct competition is with those states producing white eggs. The remaining Pacific Coast States (plus Utah and Idaho) and the states adjacent to New York are California's main competitors. The peak months for receipts on the New York market are April and May which are also the peak months for receipts from nearby states. The peak of shipments from the Pacific Coast has reached New York from one to three months earlier than either the peak of total shipments or the shipments from nearby states. During 1924, 1925, and 1926 especially, the trough in California shipments was opposite the peak of total receipts for New York. Data from table 43, p. 79.

INTERSTATE SHIPMENTS OF EGGS FROM CALIFORNIA, WASHINGTON AND OREGON

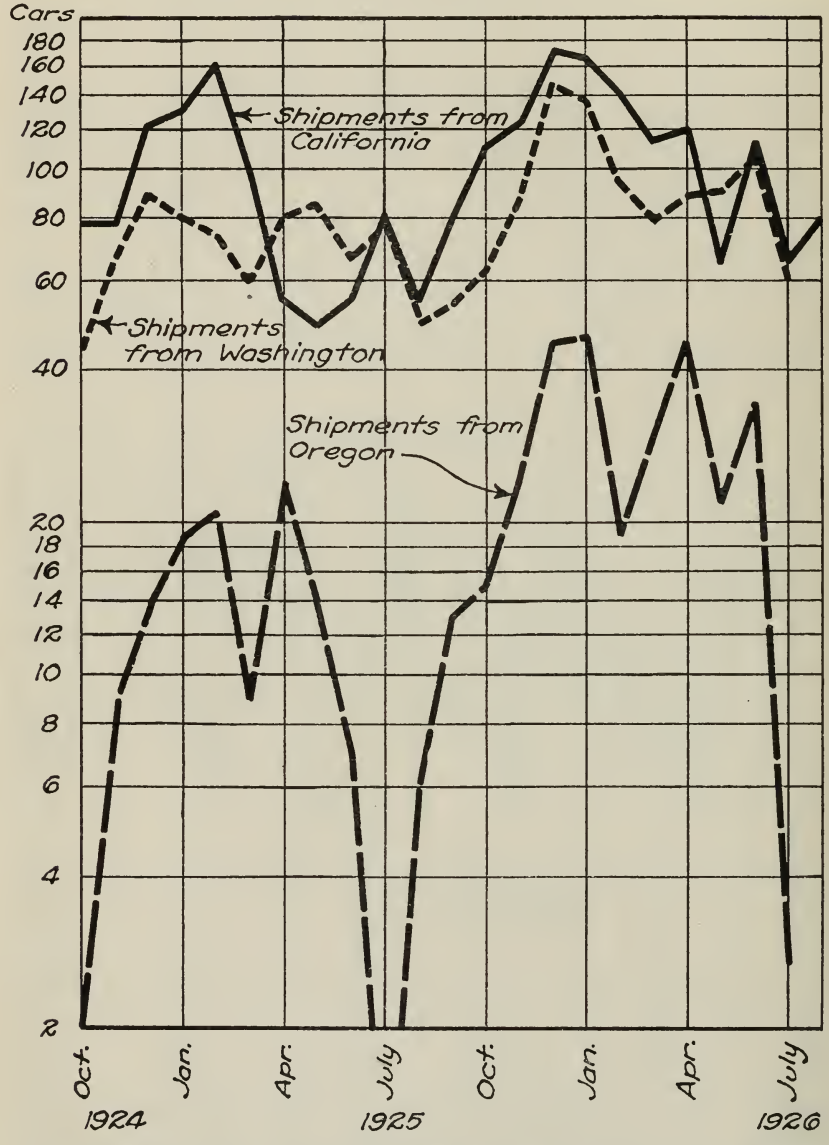

Fig. 32.—California's northern competitors are increasing their interstate shipments more rapidly than California. Tables 42, p. 77, and 44, p. 83. Shipments from all three states tend to be larger in the fall and winter months. The increases from Oregon and Washington in the winter of 1925–1926 were quite striking. The tendency during April, May, June and July for 1925 and 1926 has been for Washington to hold shipments to a relatively higher level than California.

Prices of eggs on the New York and San Francisco markets.—There is a close correlation between the prices of Pacific Coast extras on the New York market and those of extra eggs on the San Francisco market,* although grades at New York are not strictly comparable with those at San Francisco. The classification on the former market

TABLE 44

Carlot Movement of Eggs from Washington, Oregon, and California to Eastern States, October, 1924–October, 1926

	Washington Cars	Oregon Cars	California Cars
1924:			
October	45	2	78
November	70	9	78
December	89	14	122
1925:			
January	81	19	130
February	74	21	165
March 1–28	60	9	96
March 29–May 2	81	24	55
May 3–May 30	85	14	51
May 31–June 27	67	7	54
June 28–August 1	77	0	82
August 2–29	49	6	55
August 30–October 3	54	13	81
October 4–October 31	64	15	110
November 1–28	88	24	122
November 29–December 31	147	45	170
1926:			
January 1–30	136	46	167
January 31–February 27	94	19	142
February 28–March 27	80	29	114
March 28–May 1	88	45	118
May 2–May 29	91	22	65
May 30–July 3	106	34	112
July 3–July 31	65	3	60
August 1–August 28	61	8	80
August 28–October 2	101	21	157
October 3–30	111	29	126

Source of data: Daily Market Reports on Butter, Cheese, Eggs and Dressed Poultry, issued from San Francisco Office, Bureau Agricultural Economics. Note that since Mar. 1, 1925, the periods have not been calendar month periods. All figures subject to revision.

is by the general reputation of the brand, or the opinion of the trader, rather than by an official inspection. Two other grades of white eggs on this market are also shown in figure 33 for the period, January, 1922–December, 1924. Beginning in January, 1925, the grade "Firsts to extra firsts" covers the two former grades of "Extra firsts" and "Firsts." The range between the high and low quotations for Pacific Coast eggs is considerable. The adoption of uniform standards throughout the country would greatly facilitate studies of this nature.

* $r = .954$ for period January, 1922–March, 1926.

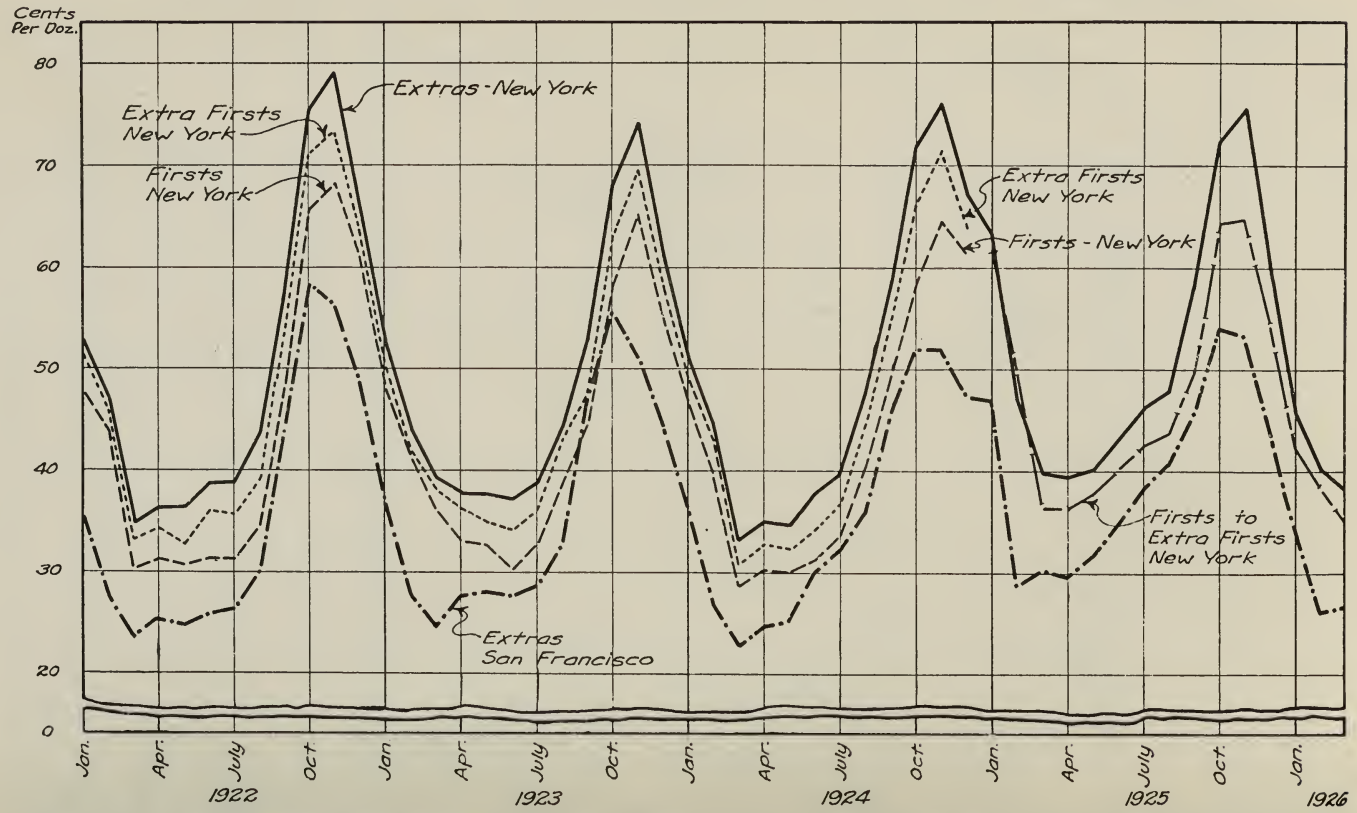

Fig. 33.—A close correlation exists between the prices of Pacific Coast White Eggs on the New York and the San Francisco markets. From 1922–1924 two additional grades of white eggs on the New York market "Extra Firsts" and "Firsts" are shown while in 1925 these two grades are combined as "Firsts to Extra Firsts." Data from table 45, p. 85.

TABLE 45

MONTHLY WHOLESALE WHITE EGG PRICES AT NEW YORK—PACIFIC COAST WHITE EGGS, 1922–1926

(Cents per Dozen)

Month	1922			1923			1924			1925		1926	
	Extras	Extra Firsts	Firsts	Extras	Extra Firsts	Firsts	Extras	Extra Firsts	Firsts	Extras	Firsts to Extra Firsts	Extras	Firsts to Extra Firsts
January	52.75	51.12	47.62	52.62	50.50	48.37	51.00	49.12	46.87	63.26	61.52	45.69	42.47
February	47.50	45.87	43.87	44.25	42.87	41.50	44.75	42.87	39.87	47.04	44.80	41.21	38.47
March	34.75	33.12	30.25	39.25	37.87	36.37	33.12	30.87	28.75	39.57	36.16	38.16	35.03
April	36.25	34.37	31 12	37.87	36.12	33.12	35.00	32.75	30.25	39.42	36.34	38.23	34.78
May	36.25	32.62	30.62	38.00	35.50	32.75	34.87	32.25	30.00	40.50	37.58	38.64	.....
June	38.62	36.12	31.25	37.12	34.25	30.25	37.75	34.25	31.12	43.10	40.25	40.01	37.81*
July	38.87	35.62	31.25	38.87	36.00	32.75	39.87	36.87	33.50	46.34	42.26	40.2	37.05*
August	43.62	39.25	34.50	44.37	42.62	38.75	47.50	44.62	40.50	47.87	43.61	45.52	40.54*
September	57.00	53.50	48.12	52.62	48.75	44.75	58.50	54.87	49.00	58.39	49.73	54.58	50.1*
October	75.50	71.00	65.12	68.00	63.25	58.25	71.62	66.12	58.75	72.10	64.25	.....	.....
November	79.12	73.37	68.25	74.25	69.75	65.25	76.25	71.37	64.62	75.48	64.85	.....	.....
December	66.12	64.00	61.12	61.25	58.25	55.12	67.12	63.87	61.12	59.09	54.66	.....	.....

* Prices for Extra Firsts, Firsts not quoted.
Source of data: From March issues of the New York Produce Review and American Creamery. Quotations are on New York grades.

*Preference for white and brown eggs.**—The preference for white or brown eggs in a city is perhaps dependent to a great extent on the type produced by most of the nearby henneries. The "nearbys" are usually advertised on the market as being the finest eggs available; then, those from a distance which most closely resemble "nearbys" are preferred as against the distant eggs of a different type.

Poultry production in the vicinity of Boston was started in the early days, when specialized henneries were not thought of, and such American breeds, as Wyandottes, Plymouth Rocks, and Rhode Island Reds, were developed as representing the ideal breeds. The center of activity for such breeds was in the New England territory. Since the "nearby" eggs in Boston were browns, no egg could be represented as being a "nearby" unless it was brown; consequently, Boston began to prefer the brown product, and has continued to do so. Along with the preference for the brown shell has continued a preference for a distinct "eggy" flavor and for yolks of considerable color, as an indication of richness.

Later in the development of poultry husbandry, when the industry was taken up intensively in New Jersey and on Long Island, great

* Letter from Earl W. Benjamin, General Manager and Treasurer, Pacific Egg Producers, New York City.

henneries were operated, and the White Leghorn was soon recognized as the most efficient egg-producing breed. New York's supply of "nearbys" was largely white-shelled, and nothing but these could be represented as "nearbys" there. New York developed preference for white-shelled eggs, with the mild flavor and light colored yolk usually found in the product of specialized henneries.

Florida markets prefer white shelled eggs for a similar reason. Many other markets, such as Philadelphia, Baltimore, Pittsburgh, Cleveland, and Chicago, have no particular preference, but fluctuate from one to the other, according to the type which is being pushed forward as the finest in that particular market.

COLD STORAGE HOLDINGS

Shell eggs.—Refrigeration not only has brought distant areas within reach of the large centers of consumption but has aided materially in the distribution of poultry products throughout the year. Eggs start into storage in the spring of the year (fig. 34, p. 87). The seasonal variations in storage holding during the ten years (1916–1926) for the nation indicate that on March first the stocks in storage are almost nothing—0.2 per cent of the normal August first holdings. The storage movement for the country begins in March; by April first, the stocks constitute 4 per cent of the normal yearly storage, as of August first. By far the larger amounts (over 70 per cent) are stored during April and May, the months of the largest receipts on the nation's markets. In June, also, there is a considerable movement into storage which continues through July although withdrawals are also made during this month. The peak of the storage holdings (when considering only the first day of each month) is August first. With the decline in receipts on the markets of the country, storage eggs are withdrawn. The outward movement assumes larger proportions in October, when fall receipts are becoming less, and in November and December it is at a maximum. During these two months between forty and fifty per cent of the eggs reported in storage on August first are withdrawn. The out-of-storage movement continues during January, a month of relatively low production and receipts, but it is not as great as during either November or December. During February storage removals are normally small although they are subject to relatively large fluctuations, since the product cannot very well be carried over into the next storage season. At times high levels of winter storage holdings act as a drag upon the market since the

Seasonal Variation in Cold Storage Holdings of Shell Eggs, United States, 1916–1926

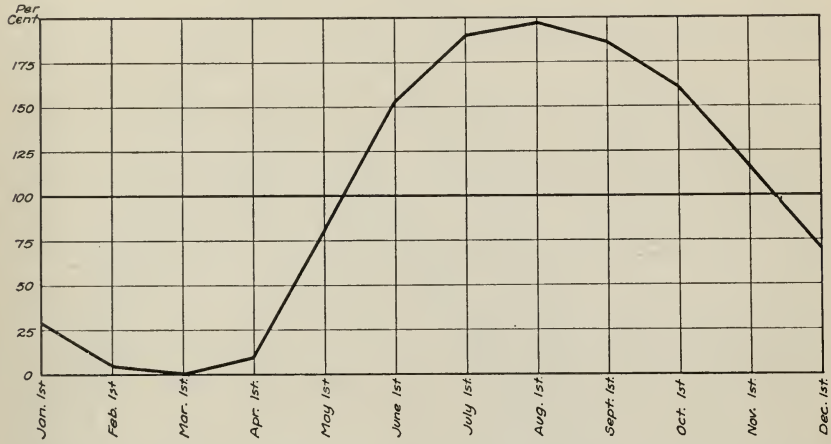

Fig. 34.—On March first of each year storage stocks of shell eggs are normally depleted. During the months of April and May over 70 per cent of the eggs are normally placed in storage. The peak of the holdings is approximately August first. Although there is a decline in holdings from August first to March first, withdrawals are greatest during October and November. Data from table 49, p. 91.

TABLE 46

Cold Storage Holdings of Eggs in the United States on the First Day of Each Month, 1915–1926

(Thousand cases—i.e., 000 omitted)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1915	.....	.....	.....	.....	.....	.....	.....	.....	5,683	5,019	3,687	2,788
1916	1,508	458	35	264	2,327	4,593	5,574	6,060	5,600	4,868	3,985	2,146
1917	920	149	7	190	2,105	4,922	6,617	6,895	6,436	5,837	4,638	2,948
1918	1,300	200	20	344	2,957	5,499	6,554	6,568	6,265	5,369	3,812	2,071
1919	740	130	26	320	3,278	6,098	7,659	7,850	7,685	6,858	5,087	3,341
1920	1,542	342	29	122	2,135	5,143	6,747	6,872	6,372	5,295	3,838	1,824
1921	408	43	43	1,926	4,909	6,844	7,534	7,605	7,210	6,269	4,380	2,403
1922	889	179	13	950	4,648	8,056	9,811	10,161	9,608	7,924	5,726	3,257
1923	1,311	213	13	453	3,737	7,890	10,222	10,509	9,883	8,737	6,645	4,028
1924	1,927	500	44	569	3,563	6,875	8,685	9,267	8,778	7,409	5,267	3,102
1925	1,050	81	21	1,240	4,872	7,712	9,482	10,024	9,863	8,606	6,320	3,780
1926	1,677	574	75	857	3,717	7,215	9,127	9,845	9,563	8,035	5,885	.....

Sources of data: Years 1915–1924, U. S. D. A. Yearbook 1924, p. 1000. Subsequent figures from monthly issues of The Agricultural Situation, Bureau Agricultural Economics.

COLD STORAGE HOLDINGS OF EGGS IN SAN FRANCISCO, 1922–1926

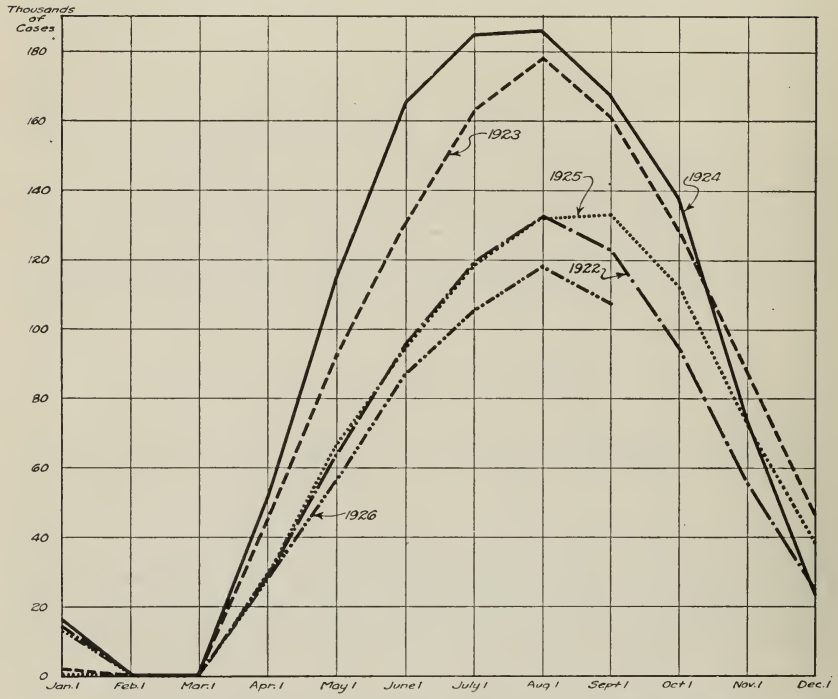

Fig. 35.—In general the seasonal variation at San Francisco follows the variation of the nation as a whole except that stocks are depleted earlier than in the nation as a whole and the into storage movement is relatively more important during March. The early spring in California accounts for this difference. Data from table 47.

TABLE 47

COLD STORAGE HOLDINGS OF SHELL EGGS, SAN FRANCISCO ON THE FIRST DAY OF EACH MONTH. JANUARY, 1922–NOVEMBER, 1926

(Thousand cases—i.e., 000 omitted)

Date	1922	1923	1924	1925	1926
Jan. 1	17	2	14	1	13
Feb. 1	1				1
Mar. 1					1
Apr. 1	51	45	29	30	28
May 1	115	93	64	67	56
June 1	165	131	96	95	87
July 1	185	163	120	119	105
Aug. 1	186	179	132	132	118
Sept. 1	168	161	123	133	107
Oct. 1	138	129	94	112	83
Nov. 1	74	88	55	72	52
Dec. 1	24	47	24	39	

Source of data: Daily mimeographed market reports on Butter, Cheese, Eggs and Dressed Poultry from Bureau Agricultural Economics, San Francisco Office.

new storing season starts on the first of March. On March 1, 1926, the holdings amounted to 75,000 cases, a figure three times as great as the five-year average (1921–1926) for the same date. Normally, large holdovers exert a depressing effect upon the market. Weather conditions greatly affect production throughout the entire country and must always be reckoned with.

While the statements above are true with reference to the normal movements during the ten years, 1916–1926, monthly holdings vary from year to year. The variation during the first month of storage activity is quite marked (table 46, p. 87). Likewise, during the months of December, January, and February there is considerable variation, as the storage season draws to a close.

Holdings for California points follow in general the variation for the country as a whole. On account of the early spring the storage season begins and ends earlier in the year (compare tables 46 and 47).

Seasonal Variation in Holdings of Frozen Eggs, United States, 1920–1925

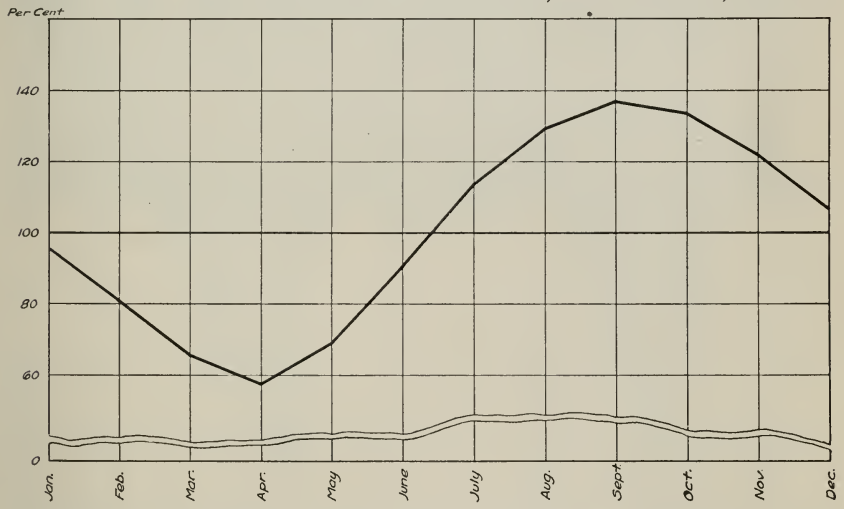

Fig. 36.—The movement of frozen eggs differs somewhat from that of shell eggs in storage. The holdings of the former fluctuate less and are not reduced to the zero point but increase after the flush season of egg production in the spring. The high point is reached in September. Data from table 49, p. 91.

Cold storage holdings of frozen eggs.—In the larger centers of concentration, there always will be found a considerable number of dirty or weak and cracked eggs, which cannot be shipped. These are often broken out of the shell and frozen solid in order to make shipment possible and to check deterioration. Since the quantity of the frozen eggs in storage is far less than the holdings of shell eggs, and

since they can be held over from one season to another, the fluctuations are not so great. The stocks, therefore, are never reduced to the zero point. The normal low point is in April. There is an increase after the flush season in the spring and the high point is reached in September. A gradual decrease then occurs until the low point is reached. The imports of frozen eggs are of considerable importance (table 71, p. 122).

NET COLD STORAGE MOVEMENT AND TRADE REQUIREMENTS OF EGGS, FIVE CITIES, 1924–1925

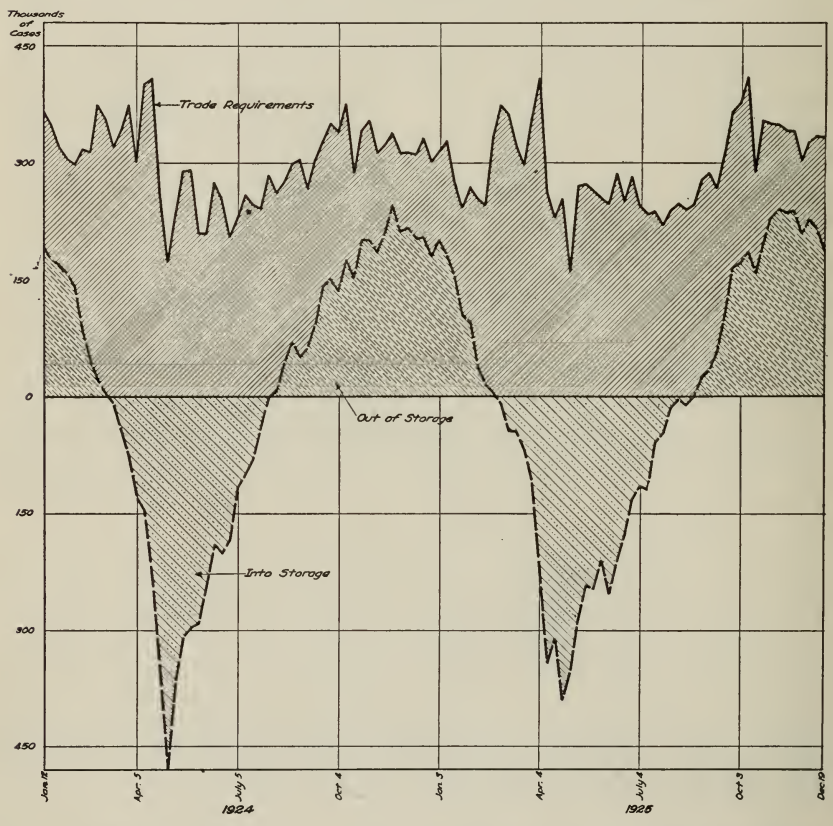

Fig. 37.—The etched portions of the diagram above the O line represent the trade requirements of the San Francisco, Chicago, Philadelphia, Boston and New York markets. From August to February these markets draw upon cold storage holdings to supplement the receipts during these months. The markets do not require all of the receipts during the period of high production—March to July—and eggs are placed in storage. Trade requirements during 1924 and 1925 were lighter during the summer months. Data based on calculations (weekly) from Bureau of Agricultural Economics.

TABLE 48

FROZEN EGGS IN STORAGE ON THE FIRST DAY OF EACH MONTH IN THE UNITED STATES, 1920–1926

(Thousand pounds—i.e., 000 omitted)

Month	1920	1921	1922	1923	1924	1925	1926
January	19,286	27,325	19,260	22,787	32,070	21,303	33,796
February	16,394	24,927	16,209	18,517	27,683	16,289	29,267
March	13,836	22,363	12,193	14,603	23,106	11,364	24,174
April	11,039	20,873	10,473	10,311	20,736	11,353	21,844
May	10,529	21,730	14,154	12,921	23,707	19,579	25,656
June	13,939	26,822	18,273	20,730	29,956	29,544	34,251
July	17,388	27,737	23,328	29,666	33,565	38,379	45,075
August	20,055	27,952	27,855	36,192	35,184	42,855	51,810
September	21,901	27,408	34,516	37,280	34,128	47,099	52,630
October	23,584	26,656	33,545	43,836	31,006	44,299	50,754
November	20,461	26,114	30,523	40,424	26,633	45,314	44,986
December	29,945	22,899	26,233	36,004	22,100	39,336	.....

Sources of data: Years 1920–1924 furnished to author by the Bureau of Agricultural Economics. 1925–1926 obtained from the monthly issue of the Bureau Agricultural Economics Agricultural Situation.

Frozen Egg classfication 1926: Whites 25%, Yolks 25%, Mixed 50% (approximate percentages).

TABLE 49

SEASONAL VARIATION IN COLD STORAGE HOLDINGS OF SHELL AND FROZEN EGGS ON THE FIRST DAY OF EACH MONTH. UNITED STATES, 1920–1925

Month	Indices of seasonal variation	
	Shell eggs I	Frozen eggs II
January	28.96	95.78
February	4.91	80.98
March	.43	65.69
April	9.47	57.65
May	80.05	69.09
June	152.21	90.23
July	189.79	113.82
August	196.53	129.14
September	186.59	136.93
October	162.76	133.08
November	119.15	121.85
December	69.19	106.27
Average	100.0	100.0

Source of data: Columns I and II computed from Tables 46 and 48 by the method of link relatives. Data in Column I based on holdings, March, 1916–Feb., 1926; II on holdings Jan.. 1920–Dec., 1925.

PRICES AND PURCHASING POWER OF CHICKENS

United States.—The trend of farm prices for chickens in the United States has been upward since 1910. Reference to figure 38 will show that the relative chicken prices and the "All Commodity Index" are fairly close together until 1916, when the latter began to climb more rapidly. The greatest distance between the two indices was in 1917. Conditions were more favorable during the next three years, and in 1921 chicken prices remained higher than all commodity prices during the depression. Since 1921 the purchasing power of chickens in the United States has been above 100. It should be noted that the base used in computing the chicken price relatives is August, 1909–July, 1914, while the "All Commodity Index" used is based upon the period January, 1910–December, 1914 (columns I and II, table 50; column III based upon calendar years 1910–1914).

TABLE 50

RELATIVE WHOLESALE PRICES AND PURCHASING POWER OF CHICKENS IN THE UNITED STATES, 1910–1925

	Relative prices	Purchasing power	
Year	I	II	III*
1910	103	100	98
1911	94	99	98
1912	96	95	96
1913	104	102	102
1914	106	106	105
1915	103	100	101
1916	116	90	93
1917	145	80	84
1918	181	92	98
1919	207	99	99
1920	220	96	94
1921	182	122	120
1922	166	110	108
1923	164	105	104
1924	167	110	110
1925	177	109	110

* Based upon calendar years 1910-1914.

Source of data: Relative price from the Bureau Agricultural Economics Supplement to the Agricultural Situation, June, 1925, and subsequent numbers of the Bureau Agricultural Economics Agricultural Situation. Purchasing power computed by dividing relative price by all commodity index (Bureau of Labor Statistics).

Prices and purchasing power of Leghorn hens, small broilers and fryers at San Francisco and Los Angeles.—It is difficult to compare the trends in prices and in purchasing power of Leghorn hens, small broilers, and fryers on the California markets with the chicken prices in the entire country. While the statistics for the relative prices of chickens in the United States are based on weighted figures, this is not possible for California because of a lack of sufficient data on production and receipts. For local price studies on poultry, Leghorn hens, small broilers, and fryers have been selected, as they are perhaps of

most interest to the California poultryman. Prices are based on the wholesale quotations at Los Angeles and San Francisco throughout the year. Hence, the average price per year is the average of twelve monthly averages although a large percentage of one grade may be sold from the farms during three or four months of the year. Data are comparatively incomplete for San Francisco on account of changes in the methods of reporting quotations. For monthly prices, the reader is referred to tables 51 to 57.

Relative Prices of Chickens and All Commodities, United States, 1910–1925

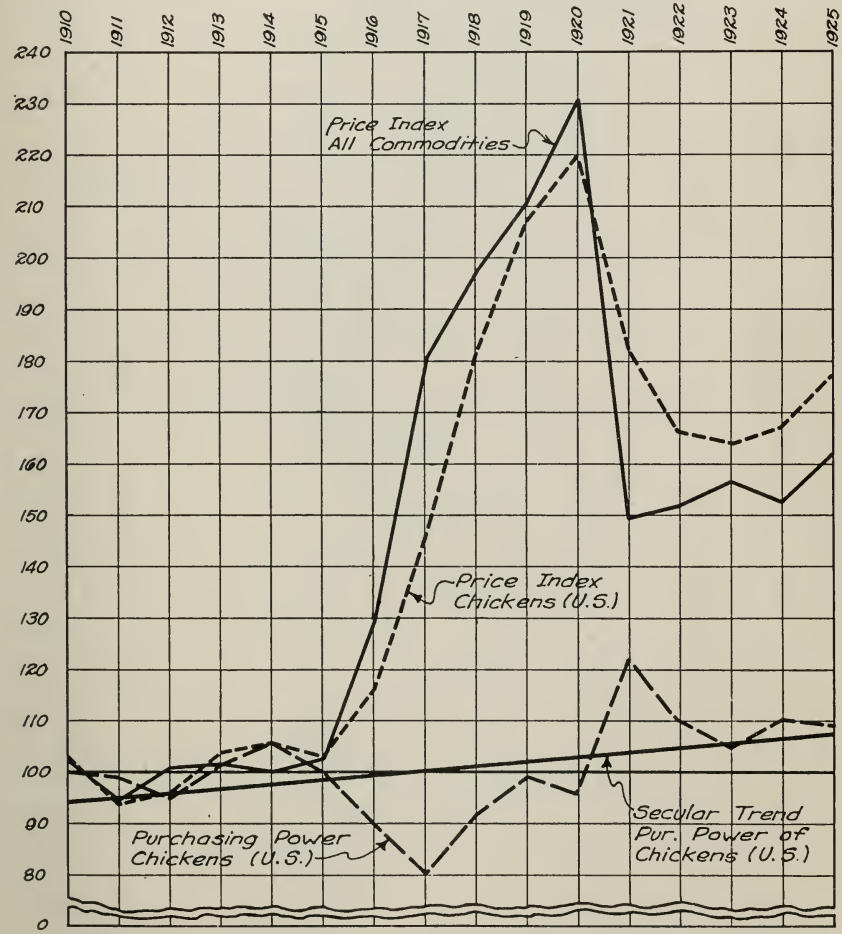

Fig. 38.—In the United States as a whole the relative prices of chickens and all commodities index were not far apart from 1910 to 1915. In 1916 the all commodities climbed more rapidly than the chicken prices. In the depression in 1921 the former declined more rapidly than the latter. Since 1921 the purchasing power of chickens in the country as a whole has been favorable.* Data from table 50, p. 92.

* Equation for the line of trend is $y = 98.56 + .177\,x$, origin January 1, 1918.

WHOLESALE QUOTATIONS OF BROILERS, FRYERS AND LEGHORN HENS, LOS ANGELES, 1906–1925

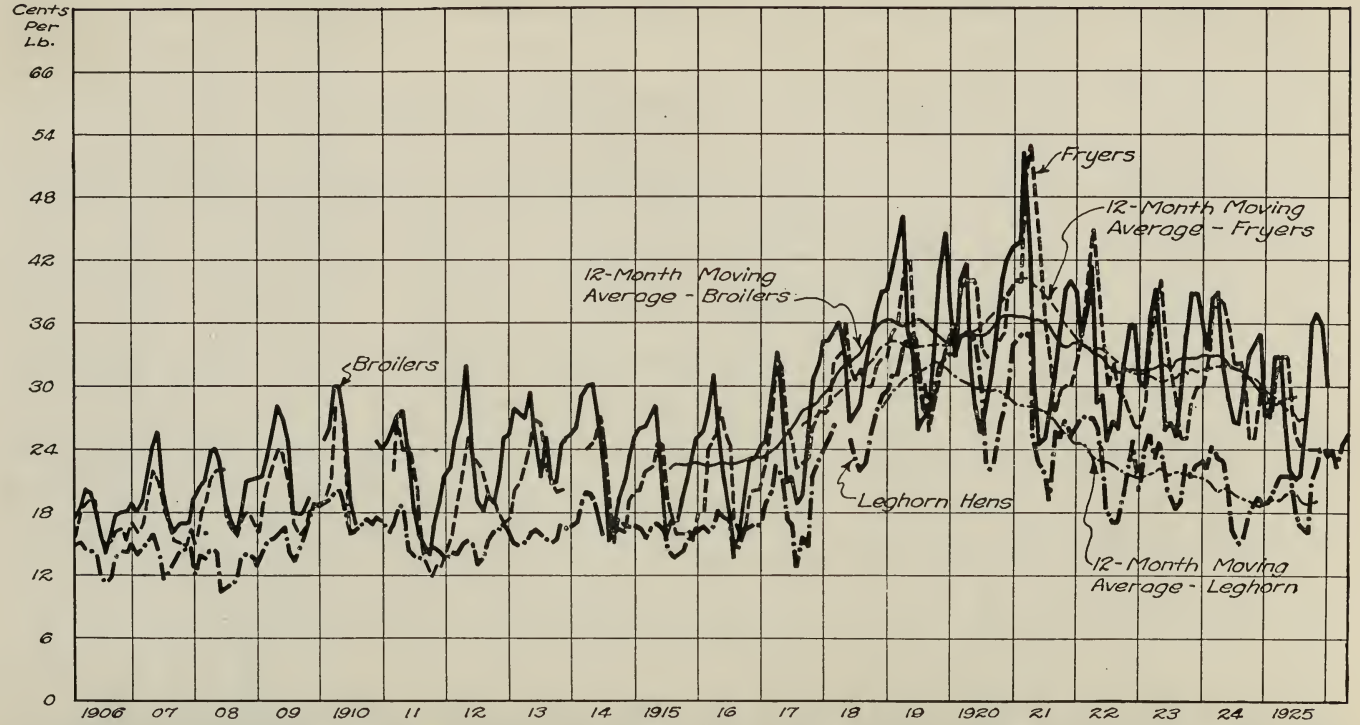

Fig. 39.—Until 1920 broiler prices were higher than those of fryers. During the next two years fryer prices averaged higher. Since 1923 the relative positions have been rather unsteady with a tendency, however, for broilers to average higher in price. Leghorn hens have shown a greater seasonal fluctuation since 1917 than they did from 1907 to 1917. This is perhaps due to the increased culling activities. Data from tables 51, p. 98, 52, p. 99, 53, p. 99.

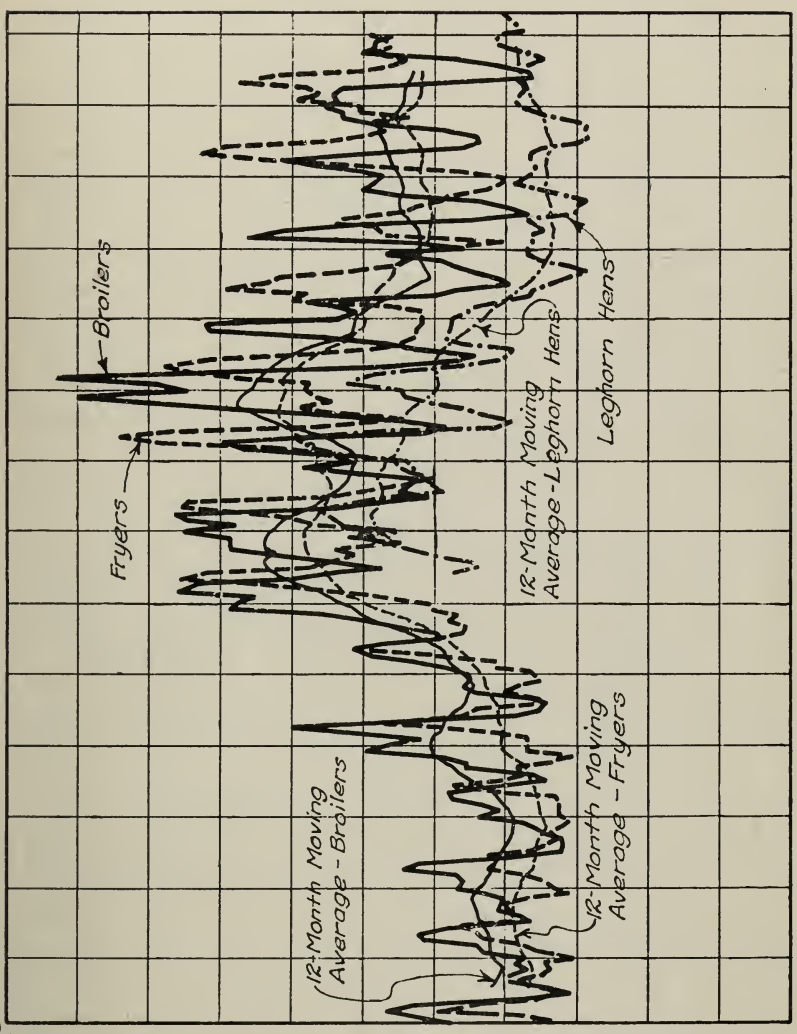

Fig. 40.—Until 1919 small broilers averaged higher in price than fryers. Since 1919 there has been a more or less constant shifting of position between the two. A careful inspection shows that Leghorn hens were relatively lower in price than either small broilers or fryers during 1922–1925. The seasonal fluctuations in Leghorn hen prices have been less in the period 1923–1925 than in the period 1918–1923. Data from tables 55, p. 100, 56, p. 101, 57, p. 102.

The increase in the poultry flocks of the state has been confined almost entirely to Leghorns. Unquestionably, an enormous increase has taken place in the volume of Leghorn hens, small broilers, and fryers sent to market. This increase in volume is reflected in the relatively small increase over pre-war prices, which have prevailed during the past three years. The purchasing power of poultry in California does not compare favorably with that in the United States as a whole.

The data available offer some interesting comparisons of prices, however. From 1905 to 1920 broilers commanded a higher average yearly price on the Los Angeles market than fryers. In 1920 this position was reversed and fryers were quoted higher. Again in 1923 broilers reached a higher average. This lead was maintained until 1924 when both averages moved together for a year. During 1925, however, fryers declined rapidly. Poultrymen would do well to take cognizance of this variation. During the period for which data are available, Leghorn hens show a relatively lower price than either fryers or broilers. The calculations for seasonal fluctuation (table 59, p. 104) are based on a six-year period for which complete data are available. A casual inspection of figure 39 reveals the fact that especially since 1917 have seasonal fluctuations in price been marked when compared with the years 1907–1917. The great activity in culling during the past few years undoubtedly has had much to do with the decided drop during the summer months.

Unlike the trends for chicken prices for the country as a whole, the purchasing power of both Leghorn hens and broilers has been downward on the Los Angeles market. The downward movement started in 1916 and only once since that time (1921) has the purchasing power been favorable. Leghorn hens held up better in purchasing power than broilers until 1923 when broilers were at an advantage. This condition prevailed during 1924, but in 1925 the relative prices for Leghorn hens again exceeded that for broilers. The quotations given for Leghorn hens are for No. 1's. Unfortunately, the hens sold are not all No. 1's. The results show that with this particular grade there has been but little improvement in returns to the grower—although 1926 (first nine months) shows a decided improvement. For all hens sold, however, there has been an improvement in the returns during the past three years. Owing to the work of improving breeding stock primarily through the activities of the accredited hatchery, the percentage of off-grade hens tends constantly to decline.*

* Information from M. A. Schofield, Los Angeles, Oct. 30, 1926.

Comparative quotations are also difficult to give on Leghorn hens because the weight requirements on the Los Angeles Produce Exchange vary from year to year and may vary from month to

Price Index and Purchasing Power, Broilers and Leghorn Hens
Los Angeles

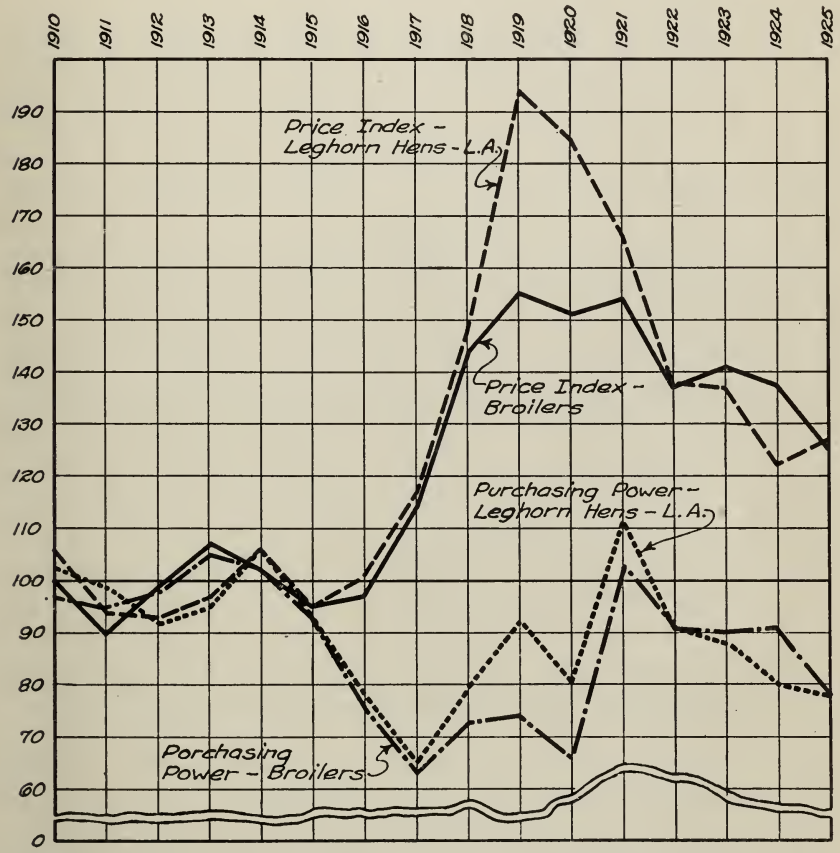

Fig. 41.—From 1910 to 1914 the prices of Leghorn hens and broilers were fairly constant. In 1915 while the relative prices of both hens and broilers declined the purchasing power of both declined still more rapidly. In spite of the fact that the relative prices of both hens and broilers increased from 1915 to 1919 the prices were not favorable to the poultryman as the purchasing power declined. 1921 was a favorable year for the poultryman as the purchasing power went above 100. Since 1921 there has been not only a decline in the relative price but also a decline in purchasing power. Data from table 53, p. 99.

month. Three or four years ago (1922–1923) off-grade hens sold for as low as 11 cents per pound. At that time 27 per cent of the hens received on the Los Angeles marked weighed less than 3 pounds, some as low as 2.5 pounds. At the present time the percentage is much

lower and this has produced more favorable returns to the grower owing to a lesser quantity of off-grade product. The demand for Leghorn hens in Los Angeles is much improved compared with 1922 and 1923.† Although the complete data for fryers are not available, an inspection of figure 39 indicates that fryers have undoubtedly followed broilers fairly closely.

On account of a change in the method of reporting the wholesale prices of poultry at San Francisco, comparable quotations on small

TABLE 51

MONTHLY WHOLESALE PRICE QUOTATIONS OF BROILERS, LOS ANGELES, 1910–1926

(Cents per pound)

Month	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926
Jan.	24.7	*24.9	22.2	27.6	26.	26.	25.7	24.7	34.4	41.5	32.9	43.5	34.7	30.	33.6	27.	29.0
Feb.	25.7	25.7	25.	27.5	29.	26.	28.5	29.4	35.6	42.4	40.	52.2	37.5	36.7	38.5	33.	35.5
Mar.	30.	27.	27.	27.	30.	27.	31.2	33.3	36 2	46.	41.6	41.8	41.5	39.4	39.	33.	38.0
Apr.	30.	27.7	32.	29.4	30.2	28.2	25.2	28.4	33.4	35 3	31.7	31.	28.5	33.	32.	26.	30.5
May	26.2	22.9	23.5	25.1	27.	20.4	21.4	20.8	26.7	32.9	28.1	24.4	29.2	25.9	29.	22.	26.8
June	18.8	18.3	19.	20.1	22.2	15.2	17.1	21.1	27.2	25.6	25.5	24.9	24.7	26.6	26.6	21.1	25.2
July	16.7	15.5	18.3	25.4	15.4	17.	14.5	18.6	28.1	26.9	27.7	27.6	26.7	25.	26.5	21.5	24.0
Aug.	17.	15.	19.5	20.5	16.2	17.	15.8	19.6	32.2	27.	31.5	30.8	25.9	29.8	23.7	27.2	27.4
Sept.	17.	14.	18.6	20.7	19.4	19.2	19.8	25.2	34.5	32.4	36.	35.5	32.	34.7	33.	36.	24.4
Oct.	.....	.....	16.7	22.3	24.5	21.	21.2	23.	30.7	37.	40.6	40.2	39.2	36.	39.	34.2	37.	35.5
Nov.	24.8	19.2	25.	25.	23.5	23.2	23.2	32.3	39.	44.7	41.9	40.	36.	39.	35.	36.	.....
Dec.	24.	21.5	25.3	25.2	25.2	25.	24.1	34 2	39.	38.	43.1	39.	30.5	35.2	27.	30.	.....
Av.	23.2	21.5	23.1	24.8	23.7	22.1	22.5	26.5	33.6	36.1	35.	35.8	32.	32.9	32.	29.2	.....

* Estimate.

Source of data: Weekly quotations have been obtained from the California Cultivator. The monthly quotation has been computed by the author from the arithmetic mean of the weekly quotations. The average for the year is a simple arithmetic mean of the twelve monthly quotations.

broilers and fryers are available since 1912 only, while the quotations on Leghorn hens are comparable only since 1918.

The prices on the San Francisco market show the same general trends as those at Los Angeles. From 1912 until 1919, prices for small broilers were above those for fryers; since 1919, there has been an alternating movement between small broiler and fryer prices of from one to two years' duration. Leghorn hen prices have shown less of a tendency to fluctuate during the past three years than from 1918 to 1922.

With 1913 as a base, the relative prices of fryers and small broilers show a decline (table 58, p. 103). Leghorn hen prices would undoubtedly show the same movement if data were available.

† Information from M. A. Schofield, Los Angeles, California.

TABLE 52

Monthly Wholesale Price Quotations of Fryers, Los Angeles, 1910–1926

(Cents per pound)

Month	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926
Jan.	19.	.....	16.2	20.	.....	20.	18.	22.8	27.8	35.	35.	40.	35.	28.	32.	27.	30.0
Feb.	20.5	22.	19.7	20.7	.....	22.	24.2	26.9	32.5	35.7	38.7	50.	38.	34.2	37.2	31.3	35.0
Mar.	28.	27.	22.	22.2	24.	22.4	25.	32.6	33.	42.	40.	55.	45.	37.7	38.	33.	40.0
Apr.	28.	23.7	25.	24.5	24.8	24.5	28.	31.5	36.	42.	40.	48.	40.	40.	38.	33.	40.0
May	24.	24.	23.7	27.	27.	24.4	25.6	26.2	31.6	35.	39.2	42.5	34.4	34.	35.	28.	32.0
June	17.	20.8	22.7	26.5	23.	19.2	24.	24.7	30.5	30.5	32.7	35.	30.	31.5	32.	25.6	36.0
July	.....	17.0	22.2	21.7	18.2	17.	17.	22.	31.	30.2	32.	32.2	31.7	28.7	32.	24.	27.0
Aug.	.....	13.7	19.5	20.5	15.	15.7	15.4	22.8	30.	25.5	32.	27.8	29.2	25.	28.5	24.	24.4
Sept.	17.5	12.	18.6	19.9	17.4	15.8	16.7	23.	30.	29.2	33.6	29.5	28.7	25.	25.	24.	25.0
Oct.	.....	13.	17.9	20.	16.5	16.	20.	26.	32.	31.4	34.7	30.	27.5	28.	25.	24.	26.2
Nov.	.....	12.8	17.	.....	19.2	15.2	20.2	27.5	33.	33.	38.5	30.	26.4	29.5	30.	24.	.....
Dec.	.....	14.5	17.3	.....	20.	18.	20.7	27.5	33.	35.6	40.	32.5	26.	30.	29.2	24.	.....
Av.	.....	.....	20.2	.....	.....	19.2	21.2	26.1	31.7	33.8	36.4	37.7	32.7	31.0	31.8	26.8	.....

Source of data: Weekly quotations have been obtained from the California Cultivator. The monthly quotation has been computed by the author from the arithmetic mean of the weekly quotations. The average for the year is a simple arithmetic mean of the twelve monthly quotations.

TABLE 53

Monthly Wholesale Price Quotations of Leghorn Hens, Los Angeles, 1910–1926

(Cents per pound)

Month	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926
Jan.	18.7	16.	14.1	15.	17.	16.5	16.7	18.6	24.7	31.	34.7	34.	27.	24.	23.2	19.	23.6
Feb.	19.4	16.7	14.	14.7	19.2	15.2	16.2	20.	26.5	31.	35.	35.	27.	25.5	24.5	20.3	22.0
Mar.	20.	18.2	15.	15.	20.	16.5	16.5	22.5	.....	33.2	35.	35.	27.	23.	23.3	22.	24.8
Apr.	20.	18.9	15.2	15.7	19.5	16.6	18.	20.7	.....	35.1	34.2	25.9	25.7	24.7	23.	22.	25.5
May	17.6	14.2	15.	16.4	17.5	16.5	17.5	17.1	24.9	34.7	29.4	22.7	22.2	22.2	20.5	22.	23.7
June	15.6	13.7	13.	15.7	15.7	14.4	17.4	16.7	23.4	30.6	22.5	21.9	18.2	19.6	16.	18.	20.3
July	16.	13.5	13.5	15.3	16.2	13.7	13.5	12.5	21.9	27.8	21.8	19.1	17.2	18.1	15.	16.5	19.1
Aug.	16.9	14.1	15.5	15.	16.	13.9	14.7	15.6	22.5	26.5	24.2	25.8	17.	18.8	15.5	16.2	19.5
Sept.	17.7	14.5	16.1	15.4	16.3	14.1	16.3	14.6	25.2	29.4	26.9	25.1	19.	22.5	18.	21.	21.3
Oct.	17.	14.5	16.1	16.7	16.1	15.	16.5	21.2	27.3	31.6	29.3	27.	22.	21.	18.6	22.2	23.2
Nov.	17.6	14.1	16.6	16.5	16.5	15.9	16.7	23.3	29.	32.5	33.7	25.	24.8	22.5	19.5	24.4	.....
Dec.	17.1	13.5	16.1	16.6	16.5	16.	16.6	23.7	29.5	32.6	30.	26.	20.	23.	19.	23.5	.....
Av.	17.8	15.2	15.0	15.7	17.2	15.4	16.4	18.9	25.5	31.3	29.7	26.9	22.3	22.1	19.7	20.6	.....

Source of data: Weekly quotations have been obtained from the California Cultivator. The monthly quotation has been computed by the author from the arithmetic mean of the weekly quotations. The average for the year is a simple arithmetic mean of the twelve monthly quotations.

TABLE 54

WHOLESALE PRICES AND PURCHASING POWER OF BROILERS AND LEGHORN HENS, LOS ANGELES, 1904–1925

Year	All Commodity Index I	Leghorn Hens			Broilers		
		Price per pound II	Relative price III	Relative value IV	Price per pound V	Relative price VI	Relative value VII
1904	87.2	13.6	84	96			
1905	87.8	13.8	85	97	17.4	75	86
1906	90.2	13.7	85	94	17.6	76	84
1907	95.2	13.8	85	89	19.8	85	89
1908	91.8	12.9	80	87	20.3	87	95
1909	98.7	15.7	97	98	22.3	96	97
1910	102.7	17.8	106	103	23.2	100	97
1911	94.7	15.2	94	99	21.5	90	95
1912	100.9	15.0	93	92	23.1	99	98
1913	101.8	15.7	97	95	24.8	107	105
1914	99.9	17.2	106	106	23.7	102	102
1915	102.6	15.4	95	93	22.1	95	93
1916	129.0	16.4	101	78	22.5	97	75
1917	180.3	18.9	117	65	26.5	114	63
1918	197.7	25.5	158	80	33.6	144	73
1919	210.1	31.3	194	92	36.1	155	74
1920	230.2	29.7	184	80	35.0	151	66
1921	149.6	26.9	166	111	35.8	154	103
1922	151.5	22.3	138	91	31.9	137	91
1923	156.5	22.1	137	88	32.9	141	90
1924	152.4	19.7	122	80	32.0	138	91
1925	162.0	20.6	127	78	29.2	126	78

Sources of data: Column I, Bureau of Labor Index converted to a 5-year base (1910–1914), published in the Supplement to the Agricultural Situation, June, 1925, pp. 54–62. Columns II and V, computed from arithmetic mean of weekly wholesale quotations in the California Cultivator. Columns III and VI, average 1910–1914=100. Columns IV and VII, relative prices deflated by the All Commodity Index. The term relative value is used to denote purchasing power.

TABLE 55

MONTHLY WHOLESALE PRICE QUOTATIONS ON SMALL BROILERS, SAN FRANCISCO, 1912–1926

(Cents per pound)

Month	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926
January	28.4	25.9	27.5	24.5	31.2	29.0	45.4	46.6	38.4	53.4	36.5	31.4	36.1	38.1	33.8
February	31.2	26.4	28.0	26.0	37.0	31.5	51.6	51.7	45.6	61.9	37.7	45.7	40.1	38.5	36.3
March	34.0	30.9	32.5	28.5	42.0	35.2	50.0	52.6	47.5	52.0	40.9	42.4	43.0	37.6	36.1
April	31.7	31.5	31.2	28.6	33.2	36.6	41.6	38.1	40.1	34.1	30.0	37.0	36.4	29.1	28.0
May	23.2	28.7	23.9	24.1	23.0	28.3	38.4	34.6	30.7	28.4	28.5	26.7	27.7	21.7	23.6
June	18.5	21.7	19.2	20.4	21.0	23.5	34.2	30.2	29.0	26.6	23.7	22.0	26.1	22.0	22.8
July	20.3	22.9	19.1	21.5	20.5	23.9	38.8	32.9	33.4	31.5	24.5	23.6	26.5	24.7	25.6
August	23.7	24.7	19.2	27.1	21.6	27.1	43.4	32.0	39.5	34.3	26.5	26.0	29.2	28.4	27.5
September	23.7	24.5	20.7	27.2	26.4	30.1	47.0	31.1	47.6	39.0	28.5	33.0	36.2	36.2	34.9
October	22.2	24.2	21.5	29.1	27.5	33.4	47.2	36.3	55.1	48.7	29.5	36.1	37.6	34.7	36.6
November	23.1	25.7	22.5	35.6	27.0	41.6	47.2	41.0	60.1	49.3	34.0	35.2	37.7	34.9	.....
December	22.4	28.1	26.4	33.6	27.0	41.0	44.7	36.8	51.6	37.9	27.5	34.5	39.1	33.6	.....
Average	25.2	26.3	24.3	27.2	28.1	31.8	44.1	38.7	43.2	41.4	30.7	32.8	34.6	31.6	.....

Source of data: Weekly quotations have been obtained from the Pacific Rural Press. The monthly quotation has been computed by the author from the arithmetic mean of the weekly quotations. The average for the year is a simple arithmetic mean of the twelve monthly quotations.

Seasonal Variations in Wholesale Prices of Broilers, Fryers, and Leghorn Hens, Los Angeles

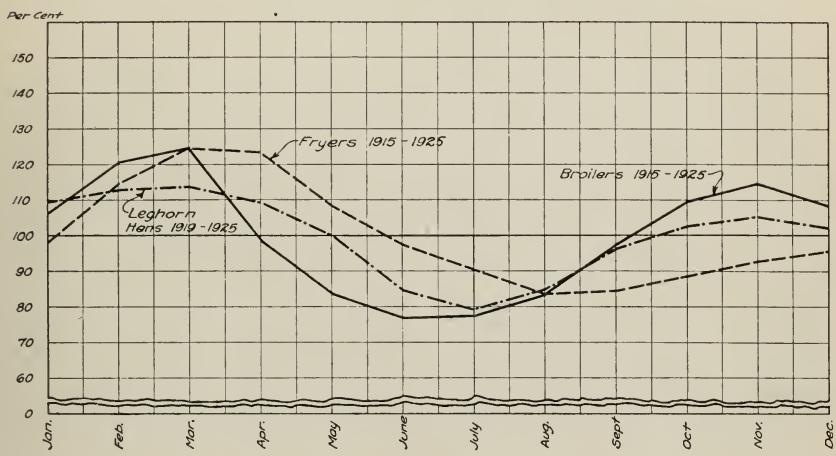

Fig. 42.—Leghorn hens are comparatively low in price during the months of June, July, August, and September. The high indices have been in February and March. The effect of the large number of broilers on the market can be noted especially from April to September. The volume of fryers come to market later than the broilers and the low indices occur from June to January. Data from table 54.

TABLE 56

Monthly Wholesale Price Quotations on Fryers, San Francisco, 1912–1926

(Cents per pound)

Month	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926
January	20.0	21.2	21.0	19.5	22.2	25.7	35.2	40.0	37.6	40.5	31.0	24.2	27.8	35.4	31.3
February	22.5	22.7	22.2	19.5	24.5	25.6	39.7	41.7	43.6	45.9	33.4	34.1	30.1	33.9	35.1
March	29.5	25.7	25.5	19.9	28.9	30.2	45.6	46.5	52.9	50.5	41.9	34.7	38.5	34.7	38.4
April	26.9	26.4	25.0	24.2	34.4	36.5	51.2	51.3	56.5	52.5	40.7	38.0	43.6	40.6	37.1
May	21.1	27.7	25.2	28.1	28.0	34.4	49.2	50.5	51.3	48.7	47.5	37.6	41.1	37.5	35.8
June	19.0	23.4	21.9	24.1	26.5	29.0	40.4	39.0	39.5	41.7	44.2	32.4	33.1	30.4	30.5
July	21.1	23.3	20.5	22.2	21.5	27.5	39.0	35.3	32.5	35.2	37.0	31.2	29.5	27.5	29.5
August	23.0	24.5	19.5	22.9	21.0	27.3	36.6	32.2	38.4	33.2	30.8	29.1	28.0	26.4	26.8
September	21.0	24.0	20.1	20.5	23.9	28.6	38.4	30.7	41.2	31.5	27.0	28.9	29.2	29.7	28.9
October	20.4	22.0	19.2	18.2	22.7	28.0	32.6	32.0	38.5	31.5	26.2	25.9	26.0	27.6	27.9
November	20.5	18.5	18.5	22.4	21.0	30.2	37.2	32.7	39.9	31.0	26.0	24.2	30.1	28.0	.....
December	18.1	19.6	19.5	22.3	21.9	30.5	35.0	33.3	40.6	31.0	24.1	24.0	30.2	29.4	.....
Average	21.9	23.3	21.5	22.0	24.7	29.5	40.0	38.8	42.7	39.4	34.2	30.4	32.3	31.8	.....

Source of data: Weekly quotations have been obtained from the Pacific Rural Press. The monthly quotation has been computed by the author from the arithmetic mean of the weekly quotations. The average for the year is a simple arithmetic mean of the twelve monthly quotations.

TABLE 57

MONTHLY WHOLESALE PRICE QUOTATIONS ON LEGHORN HENS (LARGE), SAN FRANCISCO, 1918–1926

(Cents per pound)

Month	1918	1919	1920	1921	1922	1923	1924	1925	1926
January	.....	37.5	37.7	37.4	27.4	21.7	21.9	23.1	22.8
February	.....	38.4	40.3	36.0	27.2	21.8	21.6	23.0	23.4
March	.....	39.0	40.8	35.0	24.0	19.9	22.0	22.7	23.8
April	.....	40.3	41.5	28.7	22.0	20.2	22.2	22.7	24.1
May	28.5	37.0	34.0	24.5	21.8	22.1	21.2	23.4	24.4
June	26.4	34.5	24.4	23.9	20.2	18.2	17.9	23.0	23.5
July	27.0	29.2	23.4	23.4	18.9	18.0	17.1	22.4	22.5
August	29.7	30.0	26.2	27.9	17.0	17.1	17.2	21.1	21.5
September	32.4	30.5	27.5	29.0	18.6	19.0	19.2	21.9	23.1
October	34.1	31.5	30.2	28.9	21.0	21.2	20.7	23.7	23.5
November	36.5	31.6	32.5	28.7	22.1	23.2	21.0	25.0	.....
December	33.1	32.1	32.7	28.5	22.1	22.2	23.0	24.8	.....
Average	.....	34.3	32.6	29.3	21.9	20.4	20.4	23.1	.....

Source of data: Weekly quotations have been obtained from the Pacific Rural Press. The monthly quotation has been computed by the author from the arithmetic mean of the weekly quotations. The average for the year is a simple arithmetic mean of the twelve monthly quotations.

SEASONAL VARIATIONS IN WHOLESALE PRICES OF SMALL BROILERS, FRYERS AND LARGE LEGHORN HENS, SAN FRANCISCO

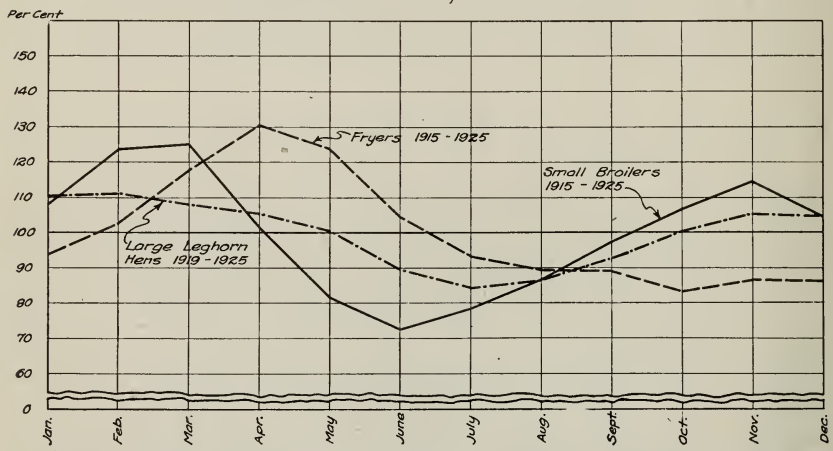

Fig. 43.—Large Leghorn hens have less of a range in quotations than either small broilers or fryers. June, July, August, and September are the months of comparatively low prices. Small broilers show a considerable range of variation, being 25 per cent above the normal year's quotation in March and over 27 per cent below in June. The peak in the quotations for fryers is in April while the low point comes in October. Data from table 59, p. 104.

TABLE 58

Wholesale Prices and Purchasing Power of Small Broilers and Fryers, San Francisco, 1912–1925

Year	All Commodity Index I	Small broilers			Fryers		
		Price per pound II	Relative price III	Relative value IV	Price per pound V	Relative price VI	Relative value VII
1912	99	25.2	96	97	21.9	94	95
1913	100	26.3	100	100	23.3	100	100
1914	98	24.3	92	94	21.5	92	94
1915	101	27.2	103	102	22.0	95	94
1916	127	28.1	107	84	24.7	106	84
1917	177	31.8	121	68	29.5	127	72
1918	194	44.1	168	87	40.0	172	89
1919	206	38.7	147	71	38.8	167	81
1920	226	43.2	164	73	42.7	183	81
1921	146	41.4	157	108	39.4	169	116
1922	149	30.7	117	79	34.2	147	99
1923	154	32.8	125	81	30.4	130	84
1924	150	34.6	132	88	32.3	139	93
1925	159	31.6	120	76	31.8	136	86

Sources of data: Column I, All Commodity Index, Bureau of Labor Statistics, 1913=100. Columns II and V, see Tables 55, p. 100, and 56, p. 101. Columns III and VI, 1913=100. Columns IV and VII, relative prices deflated by the All Commodity Index as modified for 1913. The term value is used to denote purchasing power.

Seasonal variation in price—Leghorn hens, small broilers and fryers.—On the basis of wholesale quotations for seven years at Los Angeles, March stands out as the high month for Leghorn hens, and July as the low. From October to May the price has been above normal and from June to September, below. The decline continues from March to July, being greatest from May to June. The culling season brings large numbers of hens to the market during the summer months. A gradual increase in the relative price occurs from July to November, when a secondary peak is reached, December being lower than November. From November to March there is another increase. These indices show what *has* happened, and should not be regarded as infallible guides to the future (fig. 42).

Wholesale prices on Leghorn hens at San Francisco show the same general seasonal tendencies as those at Los Angeles although the peak month is February. The range in variation has not been as great at San Francisco as it has been at Los Angeles (table 59, p. 104).

There has been a tendency during the past three years (1923–1925) for the range of variation throughout the year to lessen. There has been but little variation from October to May although a greater decline can be noted during May and June. This may be due perhaps to the practice of early culling. The four low indices—June, July,

August, and September—vary less than formerly. A tendency for higher indices in November and December as compared with February and March can also be traced.

April stands out as the high month for fryers on the San Francisco market. The decline is rapid until July when it slows down slightly but continues until the low point is reached in October. A gradual increase occurs until the peak month of April is reached. A slight rise in the prices of November over December is discernible—similar to that which occurred with Leghorn hens (table 59).

TABLE 59

INDICES OF SEASONAL VARIATION IN BROILER, FRYER AND LEGHORN HEN WHOLESALE QUOTATIONS

Month	Los Angeles			San Francisco		
	Broilers I	Fryers II	Leghorn hens III	Broilers IV	Fryers V	Leghorn hens VI
January	106.2	98.1	109.3	108.2	93.6	110.3
February	120.9	114.1	112.9	123.8	102.8	111.1
March	124.1	124.3	113.6	125.1	117.9	108.4
April	98.6	123.5	109.3	101.5	130.1	105.9
May	83.5	108.1	100.0	81.1	123.8	100.6
June	77.0	97.0	84.4	72.6	104.1	89.2
July	76.1	90.4	79.1	78.2	93.6	84.8
August	83.4	83.2	84.5	86.5	89.6	86.5
September	97.3	84.3	96.4	97.2	89.0	92.8
October	109.8	88.9	102.4	106.4	83.0	100.4
November	114.2	92.5	106.1	114.4	86.5	105.2
December	108.2	95.6	102.0	105.0	86.0	104.8
Average	100.0	100.0	100.0	100.0	100.0	100.0

Source of data: Columns I, II, IV, V for years 1915–1925; III, VI—1919–1925. All computations by author based upon Tables 51, 52, 53, 55, 56 and 57. Median link relative method used.

In general, the Los Angeles variations over the eleven years, 1915–1925, follow the same course as those for San Francisco except that the low months (August and September) and the high months (March and April) are apparently earlier.

A comparison of the indices for the past three years, 1923–1925, with those for the first three, 1915–1918, shows but little tendency to change except during July when a higher index occurs. There has been a slight tendency for the indices to be lower during the last three months of the year.

Prices of small broilers are more subject to seasonal variation than those of either Leghorn hens or fryers. On the San Francisco market, the high month is March. A rapid decline takes place from the high

point in March to the low in June. A gradual rise then occurs, and a secondary peak is reached in November. After a decline in December, the indices ascend to the peak of the year in March.

The Los Angeles indices are most closely correlated to those for San Francisco. December, however, shows a higher seasonal index than January on the former market, while the reverse is true on the latter (table 59, p. 104).

During the past three years, prices for small broilers have declined to comparatively lower levels during April, May, and June, while in September and October, the indices are noticeably higher.

POULTRY RECEIPTS, COLD STORAGE

Receipts of live poultry.—The statistics on live poultry receipts are rather unsatisfactory, especially with reference to receipts from local points on account of the increase in the use of motor trucks for transportation. The receipts from eastern points, while evidently fairly accurate with reference to the number of cars received, are not segregated according to the grades of poultry. During 1925 thirteen states and Canada supplied 817 cars of live poultry to California. One state, Nebraska, supplied 530 cars or 61 per cent of the total (fig. 44). Five hundred twenty-four cars were shipped into the state during the six months from September to February, inclusive, the larger shipments entering during the months of relatively high prices in California.

Over one-half the total number of cars (432 out of 817) were destined for the Los Angeles market (table 61, p. 107). Nebraska and Texas furnished 72 per cent of the total receipts on this market from out-of-state points. Of the 293 cars billed for San Francisco, 235 or 80 per cent had their origin in Nebraska (table 62, p. 107), while 81 of the 91 cars shipped to Oakland originated in the same state (table 63, p. 108).

Reliable statistics for arrivals from California points are not available. The Bureau of Agricultural Economics reports 177 less-than-carload lots, but owing to the use of trucks this figure is undoubtedly too small.

The 1924 statistics show that 250 cars from eastern points were shipped to San Francisco—171 cars from Nebraska and 49 cars from Texas accounting for the bulk of the shipments. During the same year, 218 cars were reported from California.

RECEIPTS OF LIVE POULTRY, CALIFORNIA, 1925

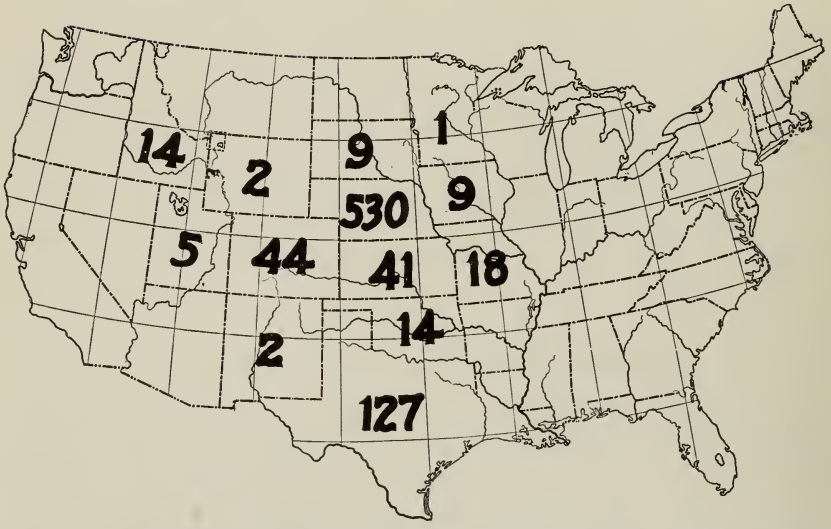

Fig. 44.—California imported live poultry from 13 states west of the Mississippi River. The above chart shows the number of cars originating in each state—Nebraska 530, etc. Data from table 60.

TABLE 60

NUMBER OF CARS OF POULTRY SHIPPED INTO CALIFORNIA MONTHLY FROM EASTERN STATES DURING 1925

	Canada	Colorado	Idaho	Iowa	Kansas	Minnesota	Missouri	Nebraska	New Mexico	Oklahoma	South Dakota	Texas	Utah	Wyoming	Total
January		2	2	1	6		3	36	2	1		8			60
February		2	1		4			33				13			53
March		2			2			26		1		22			53
April		2			1			18				28			49
May		3			1		3	18				16			41
June		3	1		2		3	24		2		3	2		41
July		2	1			1	1	27		1		2	3		38
August		2			3			39		1		5		1	51
September		8	2	3	4			70		1	3	6			97
October		3	1	3	3		1	70		2	4	1			88
November	1	5	4		5		5	81		1		4			106
December		10	2	2	10		2	88		4	2	19		1	140
Total	1	44	14	9	41	1	18	530	2	14	9	127	5	2	817

Source: Unpublished data furnished to author by California State Dept. Agriculture.

TABLE 61

Cars of Poultry Shipped to Los Angeles Monthly from Eastern Points During Year 1925

	Colorado	Idaho	Iowa	Kansas	Minnesota	Missouri	Nebraska	New Mexico	Oklahoma	South Dakota	Texas	Utah	Wyoming	Total
January	2	1	.....	5	.....	3	17	1	1	.....	7	.....	.....	37
February	2	.....	.....	2	.....	.....	12	.....	.....	.....	12	.....	.....	28
March	2	.....	.....	1	.....	.....	13	.....	1	.....	20	.....	.....	37
April	2	.....	.....	1	.....	.....	6	.....	.....	.....	17	.....	.....	26
May	2	.....	.....	1	.....	3	2	.....	.....	.....	9	.....	.....	17
June	3	1	.....	2	.....	3	11	1	2	.....	3	2	.....	28
July	2	.....	.....	.....	1	1	9	.....	1	.....	2	2	.....	18
August	2	.....	.....	.....	.....	.....	18	.....	1	.....	5	.....	1	27
September	3	1	1	4	.....	.....	31	.....	1	3	3	.....	.....	47
October	2	1	1	3	.....	.....	30	.....	2	4	1	.....	.....	44
November	2	4	.....	4	.....	3	37	.....	1	.....	3	.....	.....	54
December	6	2	.....	10	.....	2	27	.....	4	2	15	.....	1	69
Total	30	10	2	33	1	15	213	2	14	9	97	4	2	432

Source: Unpublished data furnished to author by California State Dept. Agriculture

TABLE 62

Cars of Poultry Shipped to San Francisco Monthly from Eastern States During Year 1925

	Colorado	Idaho	Iowa	Kansas	Missouri	Nebraska	Texas	Utah	Total
January	.....	1	1	1	.....	19	1	.....	23
February	.....	1	.....	2	.....	21	1	.....	25
March	.....	.....	.....	1	.....	11	2	.....	14
April	.....	.....	.....	.....	.....	5	8	.....	13
May	1	.....	.....	.....	.....	14	5	.....	20
June	.....	.....	.....	.....	.....	7	.....	.....	7
July	.....	1	.....	.....	.....	14	.....	1	16
August	.....	.....	.....	3	.....	15	.....	.....	18
September	5	1	2	.....	.....	28	3	.....	39
October	.....	.....	2	.....	1	27	.....	.....	30
November	.....	.....	.....	1	2	32	1	.....	36
December	4	.....	2	.....	.....	42	4	.....	52
Total	10	4	7	8	3	235	25	1	293

Source of data: Unpublished data furnished to author by California State Dept. Agriculture.

TABLE 63

CARS OF POULTRY SHIPPED TO OAKLAND MONTHLY FROM EASTERN STATES DURING YEAR 1925

	Canada	Colorado	Nebraska	Texas	Total
January	No report.				
February	No report.				
March	.....	.....	2	.....	2
April	.....	.....	7	3	10
May	.....	.....	2	2	4
June	.....	.....	6	.....	6
July	.....	.....	4	.....	4
August	.....	.....	6	.....	6
September	.....	.....	11	.....	11
October	.....	1	13	.....	14
November	1	3	11	.....	15
December	.....	.....	19	.....	19
Total	1	4	81	5	91

Source of data: Unpublished data furnished to author by California State Dept. Agriculture.

TABLE 64

DOZEN POULTRY SHIPPED FROM PETALUMA 1903–1923*

(Thousand dozen—i.e., 000 omitted)

Year	Thousand dozen	Year	Thousand dozen
1903	33	1911	81
1904	32	1912	84
1905	39	1913	89
1906	40	1914	84
1907	39	1915	80
1908	83	1916	106
1909	84	1917	90
1910	76	1918	57

Month	1919	1920	1921	1922	1923
January	2	4	7	43	35
February	2	3	7	49	52
March	3	2	14	29	46
April	5	5	26	33	62
May	9	9	48	119	104
June	15	24	63	116	207
July	33	13	67	151	169
August	14	36	81	120	96
September	9	56	57	131	48
October	11	50	39	48	36
November	7	16	32	97	73
December	7	22	36	49	34
Total	116	240	478	985	963

* 1924, 1925 incomplete.

Source of data: The figures have been published at intervals by the Petaluma Weekly Poultry Journal. The editor of the Journal has furnished the author with the above figures.

Comparatively complete statistics of poultry shipments from Petaluma indicate but little change during the ten years 1910–1919. Beginning in 1920, shipments increased very rapidly—almost doubling from 1919 to 1922 (fig. 27, p. 71). As previously stated, the statistics after 1923 are unreliable and hence are not given. The five months—May–September, have been the months of largest shipments. During 1922 and 1923, the bulk (1923 over 50 per cent) of the shipments were made in May, June, and July. Variations in the number of dozen poultry shipped are given in table 64, p. 108. Information as to the ultimate destinations of these shipments are unfortunately not available.

Dressed poultry; receipts; cold storage.—Although most poultry is marketed alive by the producer, the dressed poultry market is becoming of more importance both in eastern and California markets. In 1925, only 13 per cent of the 4,801,000 pounds of dressed poultry received at Los Angeles originated in California, while more than one-half (52 per cent) of the 5,615,000 pounds arriving on the San Francisco market had its origin outside of the state (fig. 45). Records from other cities and towns within the state are not available. Considerably over one-half of the receipts on the two largest California markets arrive during two months of the year—November and December. During the remainder of the year they are much less and fairly uniform. A large proportion of the receipts during November and December are no doubt turkeys.

During the months of excess receipts, the markets of the country are over-supplied for immediate needs and the surplus is placed in storage. The cold storage holdings of dressed poultry in the United States are heaviest from December to May as will be seen from the following indices of seasonal variation (fig. 47, p. 111).*

January	161.5	July	61.9
February	170.1	August	55.5
March	151.5	September	52.1
April	120.0	October	54.0
May	87.1	November	67.0
June	73.0	December	109.5

Data available for four markets (Boston, New York, Philadelphia, and Chicago) for 1924 indicate that California was a minor factor in supplying them with dressed poultry. Only 528,000 pounds of the

* Falkner, H. D., Method used in determining seasonal indices.

Mills, F. C. Statistical methods, pp. 323–326. Computation from figures in table 67.

DRESSED POULTRY RECEIPTS, SAN FRANCISCO AND LOS ANGELES, 1924–1926

Fig. 45.—The dressed poultry receipts are especially characterized by violent seasonal fluctuations, largely due to the holiday trade in November, December and January. California furnished less than 48 per cent of the receipts arriving at San Francisco in 1925 and only 13 per cent of the Los Angeles receipts. Data from tables 65, p. 112, 66, p. 113 and the Bureau of Agricultural Economics, U. S. D. A.

COLD STORAGE HOLDINGS OF POULTRY, UNITED STATES, 1917–1926

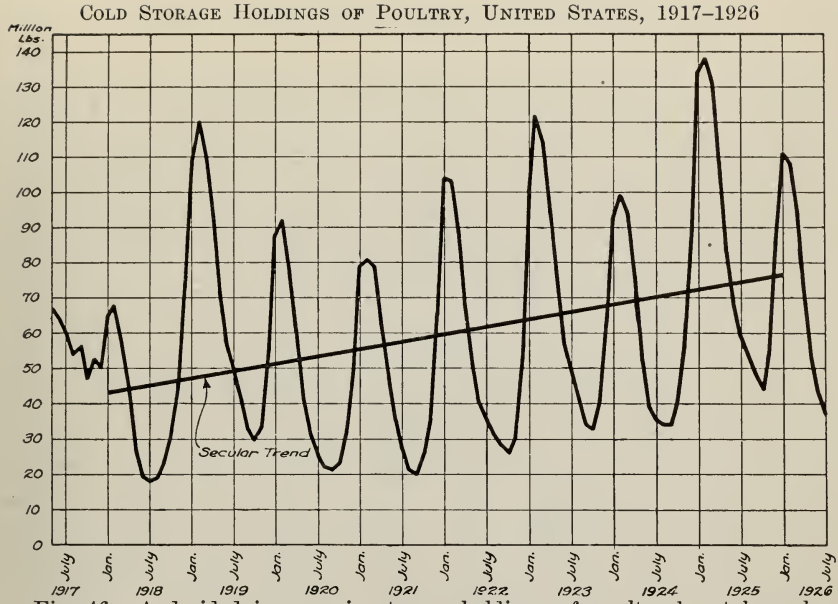

Fig. 46.—A decided increase in storage holdings of poultry has taken place since 1917.

Data from table 67, p. 115, show January, February and March are the months of largest holdings. A decline to the low point of the year in either September or October then comes about. During the months of October, November and December the holdings accumulate rapidly. Equation of line of trend $y = 59.1 + 0.35\,x$, origin at Jan. 15, 1922; x unit $= 1$ month. Equation for line of trend of annual data $y = 61.0 + 4.2\,x$, origin 1922.

SEASONAL VARIATION IN COLD STORAGE HOLDINGS OF POULTRY, U. S., 1917–1926

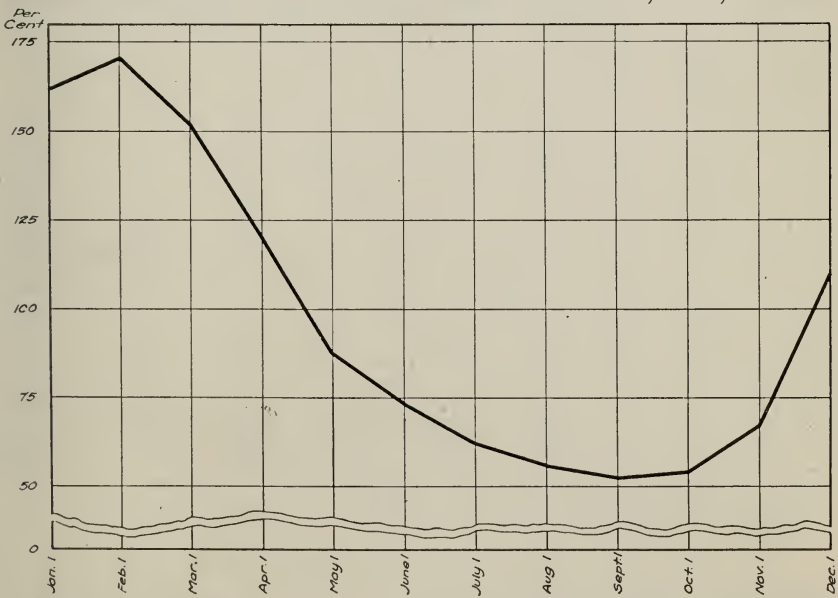

Fig. 47.—Holdings are at the low point on September first. The peak is reached on February first. During November and December the largest amounts are placed in storage. Data from p. 109.

179,362,000 pounds arriving on the New York market in 1924 originated in California (459,000 of the 170,257,000 in 1925). The first nine months of 1926 show an increase in the shipments of dressed poultry arriving from California on the New York market. The receipts January–September (inclusive) amounted to 528,000 pounds. The disposition of the poultry meat from the White Leghorn is one [illegible] problems of California's poultry industry.

TABLE 65

RECEIPTS OF DRESSED POULTRY AT SAN FRANCISCO DURING 1925

(Pounds)

States	Jan.	Feb.	Mar.	Apr.	May	June	July
[illegible]	501,267	311,367	35,877	47,931	55,008	250,590	168,701
[illegible]	29,221	23,000	29,619	20,828	.....	14,983	36,553
[illegible]	.....	.....	.....	25,583	24,000	67,000	30,100
[illegible]	214,706	.....	25,634	87,579	54,855	.....	.....
[illegible]	.....	.....	.....	.....	.....	.....	.....
[illegible]	11,422	132,038	24,000	.....	.....	23,558	.....
[illegible]	29,228	.....	38,714	28,365	.....	.....	.....
[illegible]	.....	7,771	.....	.....	.....	.....	.....
[illegible]	24,603	.....	.....	.....	24,749	.....	.....
[illegible]	82,884	37,059	29,058	.....	1,465	67,775	19,961
[illegible]	13,549	6,202	87,473	5,846	27,320	6,927	868
[illegible]	.....	.....	.....	.....	.....	.....	.....
Total 1925	816,880	517,467	270,375	216,132	187,397	430,833	256,183
1924	765,905	942,984	285,159	328,701	153,700	264,775	400,043
1923	850,396	749,130	176,182	162,889	184,571	241,950	246,696

States	Aug.	Sept.	Oct.	Nov.	Dec.	Total
[illegible]ia	116,420	85,237	82,185	373,652	679,649	2,707,884
[illegible]	12,415	6,287	57,678	168,482	233,867	632,933
[illegible]	.....	.....	.....	.....	.....	146,683
[illegible]	27,320	.....	48,573	81,720	197,820	648,207
[illegible]ota	.....	.....	.....	.....	51,585	51,585
[illegible]a	380	.....	1,913	85,054	161,189	439,604
[illegible]ka	.....	.....	.....	.....	31,210	127,517
[illegible]	.....	.....	.....	29,506	21,108	58,385
[illegible]na	.....	.....	.....	.....	.....	49,352
[illegible]	16,471	15,661	11,374	15,822	166,801	464,331
[illegible]igton	3,592	13,335	45,526	29,746	27,737	268,123
Wyo[illegible]ing	.....	.....	.....	.....	20,000	20,000
Total 1925	176,598	120,520	247,249	783,984	1,590,966	5,614,604
1924	165,345	225,886	281,162	1,339,413	1,299,510	6,452,283
1923	133,545	114,780	147,712	1,136,099	1,768,953	5,912,903

Source of data: Mimeographed sheet from U. S. D. A., Bureau Agricultural Economics, San Francisco Office.

TABLE 66

Receipts of Dressed Poultry by States at Los Angeles During 1925

(Pounds)

States	Jan.	Feb.	Mar.	Apr.	May	June	July
California	129,541	56,660	38,664	57,697	27,702	5,611	14,880
Arizona	11,578	5,465	596		190	1,127	
Colorado	569	765	379	150	224	1,291	
Idaho	167,270	37,151	31,266	1,112	3,625	13,290	8,359
Illinois	341			22,500		39,368	5,748
Iowa	24,456						
Kansas	145,347	73,223	89,138	35,129	35,176	29,907	35,674
Montana	42,981	2,155	7,138			19,494	4,481
Nebraska	993	34,273					229
Nevada	1,450	995	22,166				
New Mexico	12,386	9,804	1,162	3,253	4,428	3,520	3,431
New York		7,239		6,621			
Oklahoma	7,761	3,087	515	75,255	28,026	634	8,730
Oregon	3,458	14,199	32,098	1,350		8,767	480
Texas	2,552	3,865	29,402		984	1,299	25,796
Utah	1,610	326					8,100
Washington		2,120	4,110				
Wisconsin	289				34,337		
Wyoming							
Miscellaneous						25,026	
Total—1925	552,582	251,327	256,634	203,067	134,692	149,384	109,908
1924							

States	Aug.	Sept.	Oct.	Nov.	Dec.	Total
California	34,834	21,411	82,162	78,944	75,250	623,356
Arizona			238	132,604	18,083	169,881
Colorado	2,237	30,000		29,308	39,183	104,106
Idaho	9,024	2,349	20,030	28,691	192,129	514,896
Illinois					780	68,737
Iowa	19,788					44,244
Kansas	27,602	58,018	70,708	330,293	103,228	1,033,443
Montana				5,295	4,340	85,884
Nebraska				52,587	103,929	192,011
Nevada				28,124	7,466	60,201
New Mexico	2,105	3,412	7,910	38,378	65,561	155,350
New York	6,688	1,129	4,347	18,407	45,522	89,953
Oklahoma	7,823	4,961	88,658	127,576	173,249	526,325
Oregon		10,481	2,968	625	86,329	160,755
Texas	29,000			65,657	306,027	464,582
Utah	28,603			71,593	156,380	260,612
Washington		28,993		900		36,123
Wisconsin			38,150			72,776
Wyoming					112,541	112,541
Miscellaneous						25,026
Total—1925	167,704	160,754	315,771	1,008,982	1,489,997	4,800,802
1924	183,790	337,551	179,454	939,177	1,653,640	

Note: These figures were not compiled before August 1, 1924.
Source of data: Mimeographed sheet from U. S. D. A., Bureau Agricultural Economics, San Francisco Office.

Cold storage holdings of poultry in the Pacific Area.—Data are now available giving the cold storage holdings of the various kinds of poultry in the Pacific area. The records of the period from January 1, 1924, to date indicate that the high points of broiler holdings occur during September, October, and November, while the low

COLD STORAGE HOLDINGS OF POULTRY IN THE PACIFIC AREA (BY GROUPS)
1924–1926

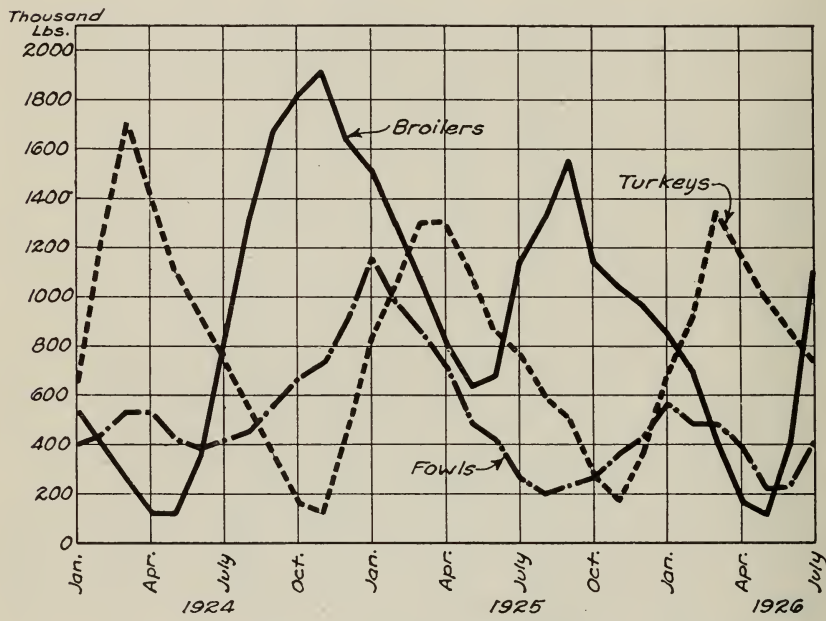

Fig. 48.—The peaks and troughs of the holdings of the various groups of poultry in the Pacific area do not coincide. The heaviest holdings during 1924 and 1925 were broilers, followed by turkeys and fowls. The broiler holdings accumulate beginning in June or July and the peak is reached during the following three or four months. Turkeys are placed in storage beginning with November while the peak is apparently reached in March. The into-storage movement of fowls starts in the summer and culminates in January. Data from table 69, p. 116. Current data in Monthly Supplement to Crops and Markets, U. S. D. A.

holdings are found during April, May, and June. Broilers constitute the largest holdings in storage at any one time during the year.

Turkeys come next in importance to broilers—the peaks being in March and April, and the low points in October and November.

Fowls* give evidence of a high point in December—and of a low point between May and October, the data available not clearly indicating the low points (fig. 48).

* "Fowl" refers to mature female chickens, that is, hens.

Cold Storage Holdings of Poultry, San Francisco, 1923–1926

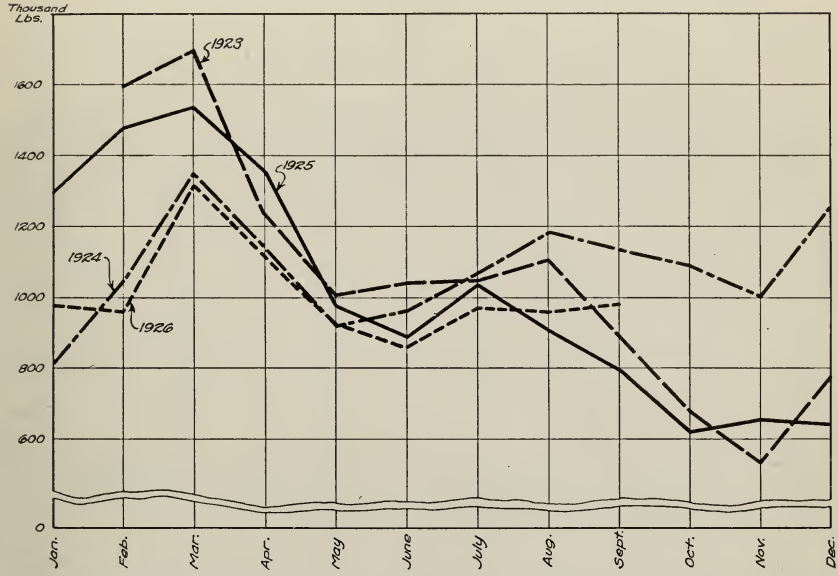

Fig. 49.—Cold storage holdings of poultry are generally heavier on the San Francisco market from December to May. During the months of heavy receipts the markets are over supplied for immediate needs. The excess is placed in storage at this time and is later drawn upon to supplement the receipts of the spring and summer months. It should be noted that even during the months when holdings are low, October and November, a considerable supply is on hand in storage. Data from table 68, p. 116.

TABLE 67

Poultry Cold Storage Holdings on the First Day of each Month: United States, May, 1917–October, 1926

(Million pounds)

Month	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926
January	.....	65	109	88	79	104	100	93	134	111
February	.....	68	120	92	81	103	122	99	138	108
March	.....	57	110	78	79	89	114	93	131	95
April	.....	44	93	61	62	68	95	76	109	73
May	67	27	71	41	47	51	75	52	83	53
June	64	19	56	31	35	39	57	39	68	43
July	60	18	49	25	27	35	49	35	59	37
August	54	19	41	22	21	31	41	34	54	36
September	56	23	33	21	20	28	34	34	48	39
October	47	30	30	23	26	26	33	40	44	45
November	52	44	33	31	35	30	40	55	54	.....
December	50	71	55	49	65	52	63	88	87	.....
Average	.....	40.4	66.7	46.8	48.1	54.7	68.7	61.5	84.1	.....

Sources of data: Years 1917–1924, U. S. D. A. Yearbook 1924, p. 995. Years 1925–1926 from Bureau Agricultural Economics, monthly issues of The Agricultural Situation.

TABLE 68

COLD STORAGE HOLDINGS OF POULTRY AT SAN FRANCISCO ON THE FIRST DAY OF EACH MONTH. FEBRUARY, 1923–NOVEMBER, 1926

(Thousand pounds—i.e., 000 omitted)

Date	1923	1924	1925	1926
Jan. 1	.....	813	1,237	975
Feb. 1	1,593	1,046	1,477	958
Mar. 1	1,693	1,348	1,533	1,317
Apr. 1	1,230	1,139	1,354	1,115
May 1	1,004	915	870	924
June 1	1,038	961	885	856
July 1	1,047	1,067	1,032	967
Aug. 1	1,103	1,182	904	952
Sept. 1	890	1,134	797	988
Oct. 1	677	1,031	619	684
Nov. 1	534	1,003	657	610
Dec. 1	774	1,255	641	.....

Source of data: Mimeographed daily market reports, Butter, Cheese, Eggs and Dressed Poultry, issued by the Bureau Agricultural Economics, San Francisco Office.

TABLE 69

POULTRY COLD STORAGE HOLDINGS ON THE FIRST OF EACH MONTH IN THE PACIFIC AREA. JANUARY, 1924–OCTOBER, 1926

(Thousand pounds—i.e., 000 omitted)

1924

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Broilers	535	404	252	121	124	358	841	1318	1670	1809	1905	1632
Roasters	411	414	395	329	249	212	155	132	114	121	227	426
Fowls	399	433	535	536	418	386	414	453	552	672	734	912
Turkeys	644	1225	1721	1409	1108	914	737	552	356	182	117	476
Miscellaneous	351	542	331	279	211	217	220	254	309	314	302	428

1925

Broilers	1519	1284	1067	804	644	683	1134	1318	1556	1142	1046	969
Roasters	587	643	618	505	346	256	177	129	119	96	220	294
Fowls	1166	967	847	721	482	415	263	197	238	260	382	416
Turkeys	835	1071	1297	1293	1095	872	774	591	508	265	174	360
Miscellaneous	459	522	396	354	250	236	347	369	388	359	345	323

1926

Broilers	848	699	397	175	115	406	1095	1491	1647	1463	.....	.....
Fryers	83	57	33	28	11	17	34	44	57	65	.....	.....
Roasters	337	309	232	191	164	104	76	53	95	82	.....	.....
Fowls	564	480	479	391	221	232	404	294	498	494	.....	.....
Turkeys	681	909	1344	1177	997	865	737	594	504	405	.....	.....
Miscellaneous	411	280	247	207	149	156	199	206	238	210	.....	.....

Source of data: Monthly Supplement, Crops and Markets, U. S. D. A.

PER CAPITA CONSUMPTION OF POULTRY

The apparent annual consumption of poultry per capita in the various industrial sections of the United States, according to investigations conducted by the United States Department of Labor in 1918–1919,* were as follows:

	Total	Hens	Other poultry
United States	5.41	4.78	.63
South Atlantic States	6.41	5.83	.57
North Atlantic States	5.60	5.02	.58
North Central States	5.19	4.65	.54
Western States	5.08	4.04	1.04
South Central States	5.06	4.56	.50

The Western States have a low per capita consumption of poultry compared with the United States as a whole. Especially noticeable is the low per capita consumption of hens and the high per capita consumption of other poultry.

The per capita consumption of poultry in rural districts is, from indications, eight to ten times that of the industrial centers. Surveys† of the United States Department of Agriculture indicated that the per capita consumption of poultry among 800 northern rural families was 45.4 pounds, while for 150 southern rural families the consumption was 58.0 pounds.

Canada as a whole showed the following per capita consumption of poultry during 1921, 1922, 1923 and 1924.‡

(Pounds)	1921	1922	1923	1924
Chickens	6.37	6.16	6.32	
Turkeys	.35	.51	.66	
Ducks	.09	.15	.16	
Geese	.16	.26	.26	
Total	6.97	7.08	7.40	7.54

* U. S. D. A. Yearbook 1924, p. 1126.

† U. S. D. A. Bulletin 410. Value to farm families of food, fuel and use of houses.

‡ Information furnished to the author by the U. S. D. A., B. A. E.

EXPORTS AND IMPORTS

Almost every county in the United States reported poultry to the census enumerators in 1920; hence, every state is a potential competitor of California. It is highly probable that poultry is kept in almost every inhabited section of the globe. Not only on account of competition in the domestic market but also on account of possible markets abroad should California poultrymen be interested in the international poultry situation. If the poultry industry of the United States continues to expand more rapidly than the demand for its products, it will be imperative to seek a foreign outlet. Although the total foreign trade of the United States is of small importance compared with the domestic production, it is of particular interest to the poultryman of California not only because this state faces the second country of the world in the present production of poultry products (China), but also because of the fact that its main market faces the continent of Europe.

Because of the different forms in which the exported and imported eggs are moved, together with changes in schedules and lack of information as to the quality of each grade of product, it is impossible to compare the quantities exported and imported. A comparison of values, however, can be made. The value of the exports of poultry products in 1925 amounted to $9,469,632* while that of the imports totaled $10,523,758,* giving an excess of a trifle over one million dollars in imports. For all practical purposes the country in 1925 was just about self-sufficient.

In kind and value, the exports and imports of the United States in 1924 and 1925 were as follows:

TABLE 70

EXPORTS OF POULTRY PRODUCTS FROM THE UNITED STATES, 1924–1925

	1924		1925*	
	Quantity	Value	Quantity	Value
Eggs in the shell—dozen	28,117,102	$7,437,595	24,998,502	$7,533,820
Egg products—pounds	504,803	76,205	301,158	45,062
Poultry—live, pounds	805,996	364,611	712,390	343,091
Poultry and game, fresh—pounds	3,996,417	1,173,595	5,101,561	1,547,659

*1925 figures subject to revision.

Table 70—(*Continued*)

Imports of Poultry Products into the United States, 1924–1925

Eggs in the shell—dozen	383,155	$115,618	608,768	$162,817
Whole eggs, dried—pounds	2,082,515	961,136	1,455,031	768,601
Whole eggs, frozen—pounds	6,162,340	911,544	12,530,948	1,837,407
Yolks, dried—pounds	4,107,418	893,979	5,683,462	1,378,945
Yolks, frozen—pounds	3,605,554	582,312	5,800,380	959,016
Egg albumen, dried—pounds	2,767,865	2,203,154	4,189,231	3,339,321
Egg albumen, frozen—pounds	996,071	119,945	4,328,034	541,518
Poultry, live—pounds	1,778,977	337,139	2,071,739	440,481
Poultry, dressed—pounds	1,690,061	434,542	2,773,995	857,436
Poultry, prepared—pounds	469,964	308,543	366,040	238,216

* 1925 figures subject to revision.
Sources of data: Mimeographed sheet issued by Dept. Commerce, Washington, D. C. Foodstuffs 'Round the World, World Dairy and Poultry News, Jan. 29, 1926.

The main export from the United States is shell eggs, and although the quantity in 1925 was less than in 1924, there has been a steady upward trend since 1895—more pronounced since 1910. During the first six months of 1926, the exports of shell eggs far exceeded the totals for similar periods for 1924 and 1925. It will be noted that the imports of shell eggs were practically negligible in both amount and value (see fig. 50). They have varied in quantity and, in fact, have never assumed any considerable importance since 1896–1897 when exports exceeded imports. This situation has prevailed during every year since that time. During the past few years shell eggs have gone principally to Cuba, Mexico, Argentine, Canada, Panama, the United Kingdom, and several smaller countries in Central and South America. Argentine, during the spring months of 1926, was taking increasingly large amounts from this country. Alaska and Hawaii are of especial importance to the Pacific Coast, as each of these non-contiguous parts of the United States have received approximately one and one-half million dozens during the three years 1922, 1923, and 1924. The largest amounts of shell eggs have been imported from China, Hongkong (British Colony) and Canada. The foreign import trade of the United States during the past few years has been centering around various egg products, as a reference to table 71, p. 122, will show. The rapidity of advances made in the uses of eggs and the multiplicity of products have made the tabulation of statistical material difficult. For purposes of comparison, it perhaps will be best to group these various products. Whole eggs dried, whole eggs frozen, yolks dried, yolks frozen have been placed in one group, while egg albumen dried and egg albumen frozen have been put in another. The greater part of these products is imported during the second half of the year. China and Hongkong are the sources of these imports; imports recorded

EXPORTS AND IMPORTS OF SHELL EGGS, UNITED STATES, 1870–1925

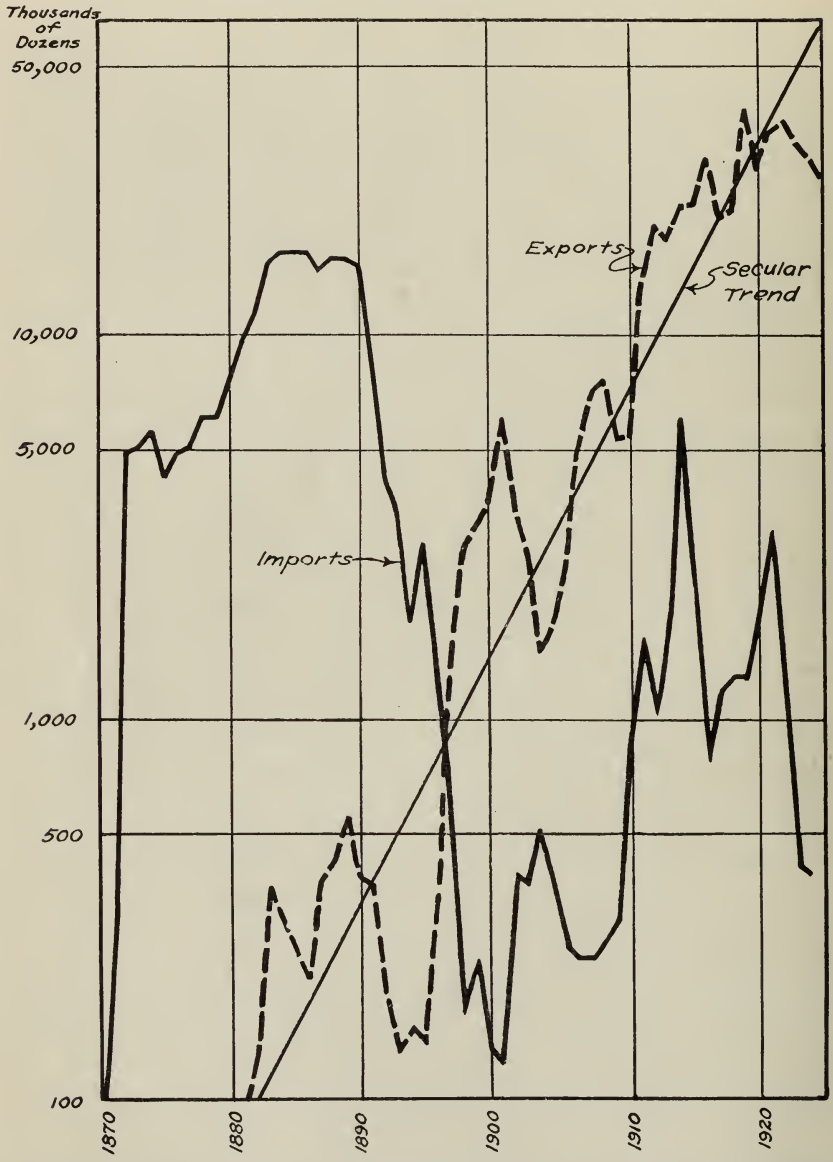

Fig. 50.—There has been an upward trend in the exports of shell eggs since 1880. If the egg production continues to increase more rapidly than domestic consumption the United States must find markets for the surplus. The imports of shell eggs have been quite irregular. Since 1914 there has been a tendency for a decline, and since 1922 the imports have been negligible compared with the exports. Data from table 71, p. 122.

Equation of line of trend of exports $\log y = 5.95725 + .07000787\,x$, origin 1897.

Imports and Exports of Eggs other than Shell Eggs, United States, 1910–1925

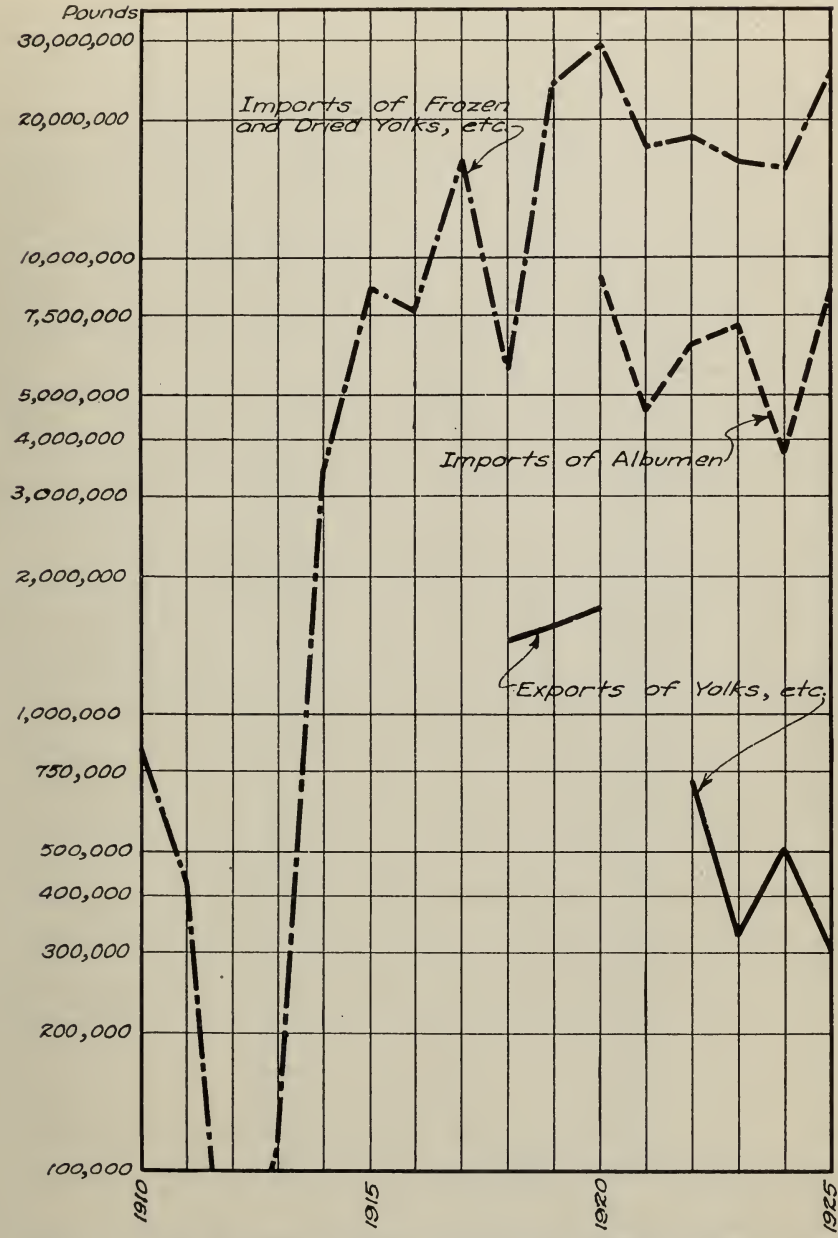

Fig. 51.—Although there has been a pronounced upward tendency in the imports of frozen and dried yolks and similar products, there is considerable variation from year to year. There has been no pronounced trend in the imports of egg albumen in various forms. The exports of egg products are almost negligible. Data from table 71, p. 122.

TABLE 71

United States—Imports and Exports of Eggs, 1866–1925

Year	Imports			Exports		
	Shell eggs	Yolks, dried, frozen, etc.	Albumen	Shell eggs	Yolks, canned, etc.	Albumen
	Dozens	*Pounds*	*Pounds*	*Dozens*	*Pounds*	*Pounds*
1866				72,114		
1867				31,642		
1868				19,604		
1869	74,585			4,055		
1870	13,270			814		
1871	287,949			5,017		
1872	4,905,423			5,148		
1873	5,065,577			15,683		
1874	5,601,175			23,749		
1875	4,351,810			34,119		
1876	4,903,771			29,633		
1877	5,048,271			32,591		
1878	6,053,649			94,265		
1879	6,022,506			91,740		
1880	7,773,492			85,885		
1881	9,578,071			80,146		
1882	11,929,355			146,776		
1883	15,279,065			360,023		
1884	16,487,204			295,484		
1885	16,098,450			240,768		
1886	16,092,583			212,202		
1887	13,936,054			372,772		
1888	15,642,861			419,701		
1889	15,918,809			548,750		
1890	15,062,796			380,884		
1891	8,233,043			363,116		
1892	4,188,492			183,063		
1893	3,318,011			143,489		
1894	1,791,430			163,061		
1895	2,705,502			151,007		
1896	947,132			328,485		
1897	580,681			1,300,183		
1898	166,319			2,754,810		
1899	225,180			3,693,611		
1900	135,038			5,920,727		
1901	126,520			3,692,875		
1902	384,070			2,717,990		
1903	368,482			1,517,189		
1904	496,825			1,776,632		
1905	352,303			2,475,884		
1906	241,034			4,952,063		
1907	231,859			6,968,985		
1908	231,939			7,590,977		
1909	288,650			5,207,151		
1910	818,267	869,923		5,325,936		
1911	1,573,394	433,405		13,276,060		

Source of data: Years 1866-1924 furnished to author by U. S. D. A., Bureau of Agricultural Economics. Year 1925 furnished to author by Bureau of Foreign and Domestic Commerce, U. S. Dept. Commerce.

Table 71—(*Continued*)

Year	Imports			Exports		
	Shell eggs	Yolks, dried, frozen, etc.	Albumen	Shell eggs	Yolks, canned, etc.	Albumen
	Dozens	*Pounds*	*Pounds*	*Dozens*	*Pounds*	*Pounds*
1912	973,053	43,822		18,962,168		
1913	1,701,153	228,305		17,668,575		
1914	5,668,398	3,420,412		21,019,166		
1915	1,872,852	8,571,758		22,323,205		
1916	759,673	7,669,350		28,266,443		
1917	1,179,047	16,268,379		19,886,079		
1918	1,244,826	6,752,453		20,938,278	1,421,883	
1919	1,247,355	24,890,621		38,789,470	1,531,659	
1920	1,708,701	29,022,577	9,111,462	26,841,772	1,700,377	
1921	3,062,601	17,898,019	4,638,529	33,291,287		
1922	1,019,170	18,239,074	6,569,546	34,620,050	704,625	13,242
1923	412,149	16,252,800	7,046,299	30,659,262	328,487	
1924	383,155	15,957,827	3,763,936	28,117,102	504,803	
1925	608,768	25,469,821	8,517,265	24,998,502	301,158	

Sources of data: Years 1866–1924 furnished to author by U. S. D. A., Bureau of Agricultural Economics. Year 1925 furnished to author by Bureau of Foreign and Domestic Commerce, U. S. Dept Commerce.

as coming from England are doubtless trans-shipments of Chinese products. Since 1910 there has been a most decided increase in the first group (see table 71, p. 122 and fig. 51, p. 121). The imports of egg albumen have not shown a pronounced trend although 1925 showed the highest importations since 1920.

The exports of egg products are negligible when compared with the imports.

Imports and exports—California ports.—Frozen and prepared eggs and egg products are the most important poultry products entering the ports of San Francisco and Los Angeles. During 1924 frozen products amounted to three million pounds with a value of approximately five hundred thousand dollars. The total value of imports of poultry products from abroad in the California customs districts was $835,504 in 1924, while the exports amounted to $179,147. The largest amount of the latter consisted of eggs in the shell.

Tariff

The present tariff on eggs and poultry is as follows:

Par. 711. Birds, alive: Poultry, 3 cents per pound: all other valued at $5 or less each, 50 cents each; valued at more than $5 each, 20 per centum ad valorem.

Par. 712. Birds, dead, dressed or undressed: Poultry, 6 cents per pound; all other 8 cents per pound; all the foregoing, prepared or preserved in any manner and not specially provided for, 35 per centum ad valorem.

Par. 713. Eggs of poultry, in the shell, 8 cents per dozen; whole eggs, egg yolk, and egg albumen, frozen or otherwise prepared or preserved, and not specially provided for, 6 cents per pound; dried whole eggs, dried egg yolk, and dried egg albumen, 18 cents per pound.

The above is from the Tariff Schedule of 1922.

INTERNATONAL TRADE IN EGGS AND EGG PRODUCTS

Foreign trade in eggs and egg products was greatly disturbed by the World War, and trade channels are still changing most rapidly. Indications point to a resumption of the pre-war aspects of the trade. The trade of Russia, Germany, and Austria Hungary was particularly upset. The discussion in this publication will center around a

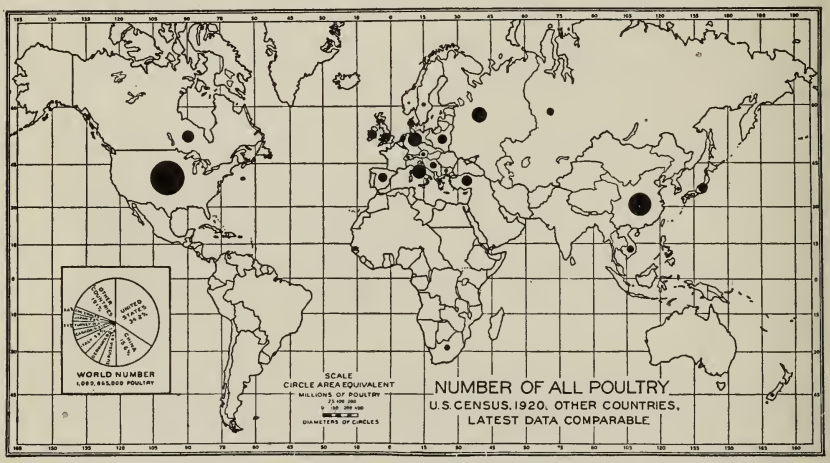

Fig. 52.—The number of poultry in the United States is larger than in any other country of the world. China ranks second.

Courtesy U. S. D. A. Photo from Yearbook, U. S. D. A., 1924, page 378.

description of the efforts being made toward the resumption of the pre-war trade, and in addition point out the increasingly intense competition on the world markets. It is also worthy of note that production in many countries contributing to the export trade is developing along modern lines. The largest exporters of shell eggs before the war were Russia, Austria Hungary, China, Denmark, Italy, and the Netherlands. Places of minor importance were held by Argentine, Egypt and the United States.

The two outstanding importers of shell eggs were Germany and Great Britain, although Belgium, France, Switzerland, Sweden, and Norway during the five years before the war imported them on a considerable scale.

TABLE 72

EXPORTS OF POULTRY AND POULTRY PRODUCTS, UNITED STATES, 1924

To	Live poultry		Fresh poultry and game		Canned poultry		Eggs in shell		Frozen eggs and yolks, etc.	
	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Dozens	Dollars	Pounds	Dollars
Belgium	13	99								
Denmark and Faroe Islands	100	225	677	203						
Finland	31	32								
France	32	18	3,182	955			8	50	30,000	4,500
Germany	5,524	5,189					3	22	28,774	4,280
Greece					120	97				
Italy			400	100	18	11				
Netherlands	81	660					5	63		
Norway	75	300					17	30		
Spain	371	750								
Sweden	41	198					1	5		
Switzerland	49	340								
United Kingdom	102,882	44,999	3,325,765	952,355	23,425	7,819	1,154,635	388,683	238,530	34,685
Canada	137,882	130,219	85,762	26,456	131	63	4,780,060	1,427,745	164,544	17,238
British Honduras	67	48			47	30	9,336	3,337		
Costa Rica	332	415	1,554	601			181	71		
Guatemala	652	424			44	33	203	64	45	60
Honduras	5,780	1,535	200	75	194	171	213,305	70,440		
Nicaragua	2,560	906			252	154	230	72		
Panama	1,059	549	177,793	54,861	1,980	1,387	910,930	306,308		
Salvador	104	201								
Mexico	229,854	71,107	21,061	5,403	1,256	824	5,848,032	1,403,019	21,306	5,809
Newfoundland and Labrador	2,842	1,055	713	342	2,000	545	27,631	8,976	1,950	1,612
Bermuda	2,632	1,274	219,201	78,883	5,605	2,121	98,752	42,020	1,630	1,142
Barbados	40	141								
Jamaica	23	32	11,722	4,092	68	22	19,280	6,235	2,650	2,094
Trinidad and Tobago	124	179	775	325					50	38
Other British West Indies	9,271	3,451	41,314	15,637	360	254	39,556	16,557		
Cuba	293,175	77,679	99,402	31,159	26,749	15,351	13,080,680	3,230,113	5,042	2,659
Dominican Republic	130	193	120	80	118	54	30	270	200	190
Dutch West Indies	36	41			294	161				
French West Indies	53	28								

Source of data: Furnished author by Bureau of Foreign and Domestic Commerce, U. S. Dept. of Commerce, San Francisco Office.

TABLE 72—(*Continued*)

To	Live poultry		Fresh poultry and game		Canned poultry		Eggs in shell		Frozen eggs and yolks, etc.	
	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Dozens	Dollars	Pounds	Dollars
Haitian Republic	30	13			70	52				
Virgin Islands, U. S.	161	101					8,634	4,096		
Argentina	969	4,026					1,881,710	516,263	560	39
Bolivia					17	14				
Brazil	1,079	2,200							505	418
Chile	363	1,278			40	46	690	186	5,044	276
Colombia	671	436	507	165	158	116	120	47		
Ecuador					42	32				
British Guiana	61	46			17	18				
Peru	893	1,193			296	185			1,095	417
Uruguay							30,000	7,500		
Venezuela	857	1,023	37	31	545	490	420	299		
British India					47	20				
British Malaya	62	222	209	99	21	12				
China	181	206	646	182	203	153	300	110	968	100
Java and Madura	180	225								
Hongkong					84	48				
Japan, including Chosen	2,493	5,550	22	8	461	360	5,130	1,939		
Kwantung, leased territory					21	12				
Palestine					70	53				
Philippine Islands	804	1,315	5,193	1,525	344	176	,544	2,380		
Soviet Russia in Asia							240	135	24	34
Australia	532	3,164			34	24			1,850	575
British Oceania	126	85								
French Oceania	550	432	162	58	12	10	540	231	36	38
New Zealand	69	279								
Other Oceania					12	10	900	329		
British South Africa	100	500			106	77				
Canary Islands					12	11				
Total	805,996	364,611	3,996,417	1,173,595	65,273	31,016	28,117,102	7,437,595	504,803	76,205

Source of data: Furnished author by Bureau of Foreign and Domestic Commerce, U. S. Dept. of Commerce, San Francisco Office.

TABLE 73

Imports of Poultry and Poultry Products, United States, 1924

From	Poultry, live		Poultry, dead		Poultry, prepared		Eggs of poultry in the shell		Eggs, dried		Eggs, frozen or prepared		Egg yolks, dried	
	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars
Belgium	562	209			3,197	1,024								
Denmark					148	42								
France	120	115	3,422	1,254	141,024	100,635	1,200	506						
Germany			97	84	1,544	2,373								
Greece					34	12								
Hungary			181,013	29,505										
Italy					291	69	138	88					146	99
Netherlands	782	848												
Norway					429	133								
Portugal					449	136								
Spain					838	486								
Switzerland	3	90			2,768	2,043								
Turkey in Europe					309	232								
United Kingdom	2,304	2,985	241,811	61,985	2,888	1,912	50	40	448,000	196,720	669,593	116,527		
Canada	1,768,776	330,650	427,197	129,038	5,671	2,186	117,278	48,881	6,000	1,700	62,200	10,718	55,400	12,538
Honduras	20	5												
Nicaragua	40	30												
Salvador	15	15												
Mexico	1,784	351			185	145	116	26	334	240				
Newfoundland and Labrador							240	96						
Cuba	15	10											400	392
Dominican Republic	3,891	804	80	11			305	73						
Argentina			727,723	178,335	628	227	6,300	2,286						
British India	42	13												
British Malaya	74	188												

Source of data: Furnished author by Bureau of Foreign and Domestic Commerce, U. S. Dept. of Commerce, San Francisco Office.

TABLE 73—(*Continued*)

From	Poultry, live		Poultry, dead		Poultry, prepared		Eggs of poultry in the shell		Eggs, dried		Eggs, frozen or prepared		Egg yolks, dried	
	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Dozens	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars
China			301	68	20,223	7,205	39,900	7,541	1,628,098	762,452	5,408,456	782,242	4,050,190	880,729
Hongkong	18	6	708	386	283,246	187,453	215,632	55,540	83	24	21,791	2,039	1,272	221
Japan, including Chosen	214	72			6,038	2,216	1,756	479			300	18		
Australia	165	555	94,658	29,613	48	14								
New Zealand	72	180	13,051	4,256										
Egypt							240	62						
Virgin Islands, U. S.	80	13												
Total	1,778,977	337,139	1,630,061	434,542	469,964	308,543	383,155	115,618	2,032,515	961,136	6,162,340	911,544	4,107,403	893,979

	Egg yolks, frozen or prepared		Egg albumen, dried		Egg albumen, frozen or prepared	
	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars
1924						
United Kingdom	178,640	46,344	61,164	67,713		
Canada	14,784	2,328	4,000	3,600	429	536
China	3,411,630	533,573	2,685,914	2,118,076	994,892	119,311
Hongkong	500	67	11,587	9,241	750	98
Japan, including Chosen			5,200	4,524		
Total	3,605,554	582,312	2,767,865	2,203,154	996,071	119,945

Source of data: Furnished author by Bureau of Foreign and Domestic Commerce, U. S. Dept. of Commerce, San Francisco Office.

Since the war, countries exporting eggs in considerable quantities have been China, Denmark, Russia, the United States, Italy, and the Netherlands.

The outstanding importing nation since the war has been the United Kingdom, although Germany is apparently increasing her imports steadily. Of special importance to the United States have

TABLE 74

EGGS IN SHELL

International Trade, calendar years, average 1909–1913, annual 1921–1923

(Thousand dozen—i.e., 000 omitted)

Country	Average 1909-1913		1921		1922		1923 preliminary	
	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports
Principal exporting countries:								
Argentina	2,351	.....	11	6,358	317	3,557	.....	3,336
Austria	.....	.....	5,417	.....	.....	.....	9,564	26
Austria-Hungary	91,561	177,163	.....	.....	.....	.....	.....	.....
China	270	25,542	139	98,393	234	98,498	788	91,754
Denmark	2,243	34,340	86	54,007	414	61,258	1,403	66,602
Finland	2,899	3	(1)	871	.....	324	.....	35
Italy	4,104	33,482	316	392	2,534	13,363	3,621	13,173
Netherlands	19,542	29,360	1,047	9,738	1,392	13,087	964	19,874
United States	(2)1,701	12,108	3,063	33,291	1,019	34,620	412	30,659
Principal importing countries:								
Belgium	19,148	11,521	4,413	137	9,506	1,181	5,414	5,356
Canada	6,341	148	6,583	5,444	8,141	3,619	6,623	2,900
Cuba	4,732	.....	16,353	.....	11,006	.....	.....	.....
France	37,215	8,920	11,847	1,451	26,711	6,588	28,983	30,763
Germany	228,279	675	2,038	(3)944	194	1,069	1,150	93
Japan	6,867	.....	53,277	.....	.....	.....	.....	.....
Norway	387	4	4,089	2	4,522	3	1,828	.....
Sweden	4,207	3,781	2,637	977	2,519	814	3,092	1,127
Switzerland	19,747	48	14,685	(1)	14,633	(1)	17,623	2
United Kingdom	190,015	.....	105,305	28	135,670	38	200,487	.....
Total 19 countries	641,609	337,095	231,306	212,033	218,812	238,019	281,952	265,700

(1) Less than 500 dozen.
(2) One year only.
(3) Eight months, May-December.
Source of data: U. S. D. A. Yearbook 1924, p. 1000.

been the imports of Mexico, Cuba, Canada, and the Argentine (seasonal imports in the spring).

In the exportation of egg products, China occupies the dominant position. Available statistics indicate that China has increased her exports six-fold since the period 1909–1913. Great Britain and the United States have received the bulk of these imports, although Germany is again appearing on this market. Some idea of the world situation can undoubtedly be obtained from a description of the

TABLE 75

EGGS NOT IN THE SHELL

International trade, calendar years average 1909–1913, annual 1921–1923

(Thousand pounds—i.e., 000 omitted)

Country	Average, 1909-1913		1921		1922		1923 preliminary	
	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports
Principal exporting countries:								
Austria-Hungary	1,100	188	.....	.....	.....	.....	.....	.....
China	.....	17,217	.....	64,545	.....	94,455	.....	100,387
Principal importing countries:								
Denmark	526	(1)6	291	9	557	2	.....	.....
France	1,967	426	2,037	26	3,860	15	5,764	52
Germany	11,214	3,225	7,582	(2)556	9,717	1,362	6,417	1,350
Italy	381	4	202	27	1,056	6	949	1
Netherlands	.....	.....	3,014	486	3,247	796	2,833	3,582
Sweden	(3)255	(4)	195	5	318	12	.....	.....
United Kingdom	(5)	(5)	42,609	453	41,875	452	54,060	.....
United States	.....	.....	22,537	(6)	24,809	718	23,300	328
Total, 10 countries	15,443	21,066	78,467	66,107	85,439	97,818	93,323	105,700

(1) Three-year average.
(2) Eight months, May–December.
(3) Two-year average.
(4) Less than 500 pounds.
(5) Not separately stated.
(6) Expressed only in value.
Source of data: U. S. D. A. Yearbook 1924, p. 1001.

developments which have been taking place in certain sections. Brief discussions of some of the advantages which certain sections of Europe possess in poultry raising are also given in a recent publication* of the United States Department of Agriculture.

TABLE 76

IMPORTS AND EXPORTS OF EGGS BY COUNTRIES, CANADA, 1924 AND 1925*

	Imports—Dozens		Exports—Dozens	
	1924	1925	1924	1925
United States	4,920,819	2,577,400	120,426	62,925
United Kingdom	236	.....	2,363,170	2,143,090
Other countries	59,654	144,206	233,008	260,255
Total	4,980,709	2,721,606	2,716,604	2,466,270

*Not including Alberta.

Source of data: Mimeographed sheet issued by Dept. of Commerce, Washington, D. C. Foodstuffs 'Round the World, World Dairy and Poultry News, March 12, 1926.

* Pierce, H. C. The poultry and egg industry in Europe. U. S. D. A. Dept. Bul. 1385:1–7, 1926.

Canada.—No economic study of any product can fail to take Canada into consideration. It has been alternately on the export and import list in poultry products. During 1924 and 1925 it was the market for considerable quantities of eggs from the United States.

The production of eggs on farms increased even more rapidly than that of poultry. A total of 224,778,867 dozen in 1925 was reached, an increase of nearly six per cent over the 212,648,865 in 1924. The western provinces have shown the greatest progress, mainly because of the tendency there towards the diversification of agriculture. In 1918, there were only about 13 million head of poultry in the western provinces, but in 1925 this number had been increased to more than 20 million. Thus, where they were once dependent upon imports, they are now engaged in a considerable export trade.

Poultry of all kinds are increasing rapidly as will be seen from the following table:

TABLE 77

Canada—Kinds of Poultry on Farms, 1901, 1911, 1918–1925

Year	Number of chickens	Number of turkeys	Number of ducks	Number of geese	Total number of poultry
1901, Mar. 31	16,651,000	585,000	291,000	396,000	17,923,000
1911, June 1	29,773,000	863,000	527,000	630,000	31,793,000
1918	31,334,498	1,062,000	884,000	879,000	34,160,000
1919	31,786,000	840,000†	778,000†	803,000†	34,645,000
1920	28,287,000†	806,000†	651,000†	762,000†	30,506,000
1921, July 15	34,341,000	1,199,000	762,000	880,000	37,185,793
1922, July 15	39,928,000	1,590,000	958,000	947,000	43,930,562
1923, July 15	41,356,000	2,105,000	1,046,000	961,000	45,469,292
1924	42,885,000	2,348,721	1,236,820	1,088,000	47,538,139
1925					48,133,969

† Not including Alberta.

Sources of data: Statistics for 1901, 1911, 1918–1924 furnished to author by U. S. D. A., Bureau of Agricultural Economics, Washington, D. C. Year 1925, mimeographed sheet from Dept. of Commerce, Foodstuffs 'Round the World, World Dairy and Poultry News, Mar. 24, 1926.

Mexico.—A remarkable development within recent years has been the increase in exporting eggs from the United States to Mexico especially since 1918. This increase is due partly to Mexico's decrease in production brought about by revolution, and partly to the difference in seasons of the two countries. In the large central plateau of Mexico, the season of greatest production is during December, January, and February. During the spring and summer—the rainy season—fewer eggs are produced, whereas the production in the United States is then at its height. Exports to Mexico in 1924 were 5,848,000 dozens.

TABLE 78

Canada—Imports and Exports of Eggs, 1900–1925

Year	Imports, dozens	Exports dozens
1900	.....	10,187,906
1901	.....	11,363,064
1902	.....	11,635,108
1903	559,236	7,404,100
1904	972,249	5,780,316
1905	306,567	3,655,651
1906	485,229	2,937,777
1907	666,574	2,921,725
1908	1,186,204	1,365,890
1909	1,146,041	552,850
1910	893,324	106,650
1911	2,469,927	92,164
1912	7,552,248	203,231
1913	13,240,111	147,419
1914	11,274,036	124,002
1915	4,534,611	3,592,899
1916	3,783,952	7,898,322
1917	3,038,843	5,167,343
1918	4,274,452	4,896,793
1919	1,755,122	733,445
1920	5,977,480	6,000,528
1921	5,341,936	6,579,853
1922	9,637,303	4,399,534
1923	8,319,662	3,613,531
1924	4,980,709	2,716,604
1925	2,721,606	2,466,270

Source of data: Furnished to author by U. S. D. A., Bureau of Agricultural Economics, Washington, D. C.

TABLE 79

Imports and Exports of Shell Eggs, Argentine, 1921–1924
(Dozens)

Year	Exports, dozens	Imports, dozens*
1921	4,750,935	12,382
1922	2,428,935	356,125
1923	2,594,748	2,141,365
1924	4,555,298	3,378,478

* The imports were converted into dozens from pounds at the rate of 9 eggs to the pound.
Source of data: Information furnished to author by Dept. of Commerce.

TABLE 80

Exports and Imports of Shell Eggs by Countries, Argentine, 1924

Exports by countries (1924)	Dozens	Imports by countries (1924)	Dozens*
United States	6,300	United States	2,664,548
United Kingdom	4,503,798	Italy	446,773
Italy	33,750	Uruguay	102,505
Netherlands	8,120	Germany	82,672
Spain	3,330	England	80,951
		Brazil	943
		Chile	41
		Denmark	45
	4,555,298		3,378,478

* The imports were converted into dozens from pounds at the rate of 9 eggs to the pound.
Source of data: Information furnished to author by Dept. of Commerce.

Argentine.—Details of the exports and imports of eggs during 1924 show that the movement both in and out of Argentine surpassed the 1923 volume.

In 1924 the exports of eggs from the United States to Argentine more than doubled those of 1923. Customs officials state that all the eggs imported into the Argentine in 1924 went in free of duty.

This trade is of especial interest since the exports to Argentine are made in the spring (April–June) at the time of flush production in this country.

Other South American countries.—Statistics with reference to other South American countries are not important. Chile has imported small quantities of eggs from the United States.

Central America and the West Indies.—Of the Central American republics, Panama has been the most important receiver of eggs from the United States although other nations have at times taken varying amounts. The West Indies have been important customers of the United States, Cuba especially being a large importer.

*Effect of European climate on poultry production and quality.**—*"It may be safely stated that if Europe, especially northern Europe, had the same ranges in temperature as the central United States, at least 10 per cent of their eggs and 50 per cent of their dressed poultry as now handled during the summer would spoil before they could be marketed.*

"In the United States, the January mean temperatures range from 10° to 30° F in the extreme northern section; 30° to 50° in the central sections; and 50° to 60° in the far southern sections. In Europe, on the other hand, the January temperatures average from 30° to 50°, except in Russia, which is much colder.

"The July temperatures in the central United States, the section of greatest poultry and egg production, average from 70° to 90° F. The corresponding temperatures in northern Europe are from 50° to 70° and in southern Europe, below a line drawn through northern Italy and upper Yugoslavia, the corresponding temperatures are from 70° to 80°.

"When it is considered that a point between 68° F and 69° F is the temperature at which a fertile egg will commence to develop an embryo, even though it subsequently dies, and that at a temperature of 90° blood will form in a fertile egg in three days, thus rendering it unfit for food, these temperature figures become especially important.

* Pierce, H. C. The Poultry and Egg Industry of Europe. U. S. D. A. Dept. Bul. 1385:1–7, 1926.

They show that in the egg-producing centers of the United States, during the summer months not only are the average temperatures continually above the physiological zero of the egg (68° F–69° F) but in vast areas they range around 90° and above, resulting in the rapid spoiling of fertile eggs. The larger portions of continental Europe, however have an average temperature of 50° to 70°, exceeding the physiological zero by only 2°, at which temperature germinal development is very slow. Even in southern Europe, the maximum average temperature of 80° is 10° less than that of central and southern United States.

"These lower summer temperatures explain why it is possible for the Europeans to gather and ship their eggs in the summer without refrigeration. They also explain why it is possible for poultry to be dressed in northern Europe, cooled without refrigeration, sold on the market without additional cooling, and reach the consumer in fair condition within three or four days after killing.

"The climate of Europe also indirectly affects the number of poultry produced in the same manner as it does the poultry production of the United States—that is, through its influence on the production of corn. In the United States the poultry production is the heaviest where the corn production is the greatest. This is also true in Europe. The largest exporting poultry section of Europe is the lower Danube Basin, including part of Austria, Hungary, Yugoslavia, Bulgaria, and Rumania, and adjacent Russian territory. This is also the main corn-producing section of Europe, as corn is not produced to any extent in any other section except in small areas in northern Italy and southern France. Corn is produced only in areas where there are warm nights, long growing seasons, and adequate rainfall. Thus, we may expect that the exportable poultry surplus in Europe will continue to come mainly from the lower Danube Basin and Russia.

"The egg supply will probably also increase in this area and in the sections of Europe adjacent to the large markets, such as Denmark, Netherlands, Germany, Belgium, France, and Ireland. In these countries interest in the keeping of poultry for egg production is developing more and more rapidly, and the flocks of poultry can be expanded even though a large part of the feed supplies must be purchased from abroad."

United Kingdom.—Since the war, the United Kingdom has been the world's largest importer of eggs, only 50 per cent of those consumed being produced at home. Eleven per cent are imported from the Irish Free State and only 2 per cent from other British possessions, foreign countries furnishing the British markets with 37 per cent of

TABLE 81

England's Imports of Shell Eggs by Countries, 1922–1925

(Ten thousand dozen—i.e., 0000 omitted)

Source	1922	1923	1924	1925
Denmark	5,735	6,757	6,045	5,836
Lithuania	774	478	301	212
Poland	902	1,285	731	1,068
Holland	650	1,435	1,235	1,692
France	319	1,338	60	232
Italy	319	415	422	525
Jugoslavia	460	420	54	75
Egypt	1,260	1,209	1,624	1,161
China	1,057	1,113	1,033	1,101
United States	337	240	135	88
Irish Free State		3,345	4,687	4,567
Canada	496	378	271	246
Other countries	1,352	1,632	3,682	5,170
Total	13,662	20,046	20,279	21,974

Source of data: "Landbrugsraadets Meddelelser" **3**, 1926. Copenhagen, Denmark.

TABLE 82

United Kingdom—Imports and Exports of Eggs, 1900–1925

Year	In shell		Out of shell	
	Imports Dozens	Exports Dozens	Imports Pounds	Exports Pounds
1900	168,820,780			
1901	170,717,767			
1902	189,667,950			
1903	198,488,940			
1904	191,925,918			
1905	183,142,918			
1906	188,740,583			
1907	185,679,000			
1908	182,100,666			
1909	177,104,333			
1910	183,441,333			
1911	190,578,917			
1912	190,850,500			
1913	215,799,500	1,810,960		
1914	179,048,083			
1915	102,460,250			
1916	66,063,750			
1917	49,224,000			
1918	26,564,166			
1919	56,443,916	5,648	59,841,824	
1920	70,605,083	7,570	45,284,000	14,547,872
1921	105,575,000	28,000	58,174,929	15,565,648
1922	136,616,666		52,929,520	9,870,400
1923	200,459,416		62,322,000	11,054,848
1924	202,790,000			
1925	219,740,000			

Sources of data: Years 1900–1923, Statistical Abstract for the United Kingdom. 1923–1925. "Landbrugsraadets Meddelelser," **3**, 1926, Copenhagen, Denmark.

the imports. The imports by countries are given in table 81, p. 135. Almost every exporting country in the entire world ships a portion of its product into the United Kingdom. The most striking feature of the import position is the severe reduction in supplies from Russia as compared with the years before the war. The tendency now, however, is upward. This deficit has been made up by several parts of the former Russian Empire—Poland, Latvia, Lithuania, Esthonia, and Finland—together with Denmark, Egypt, and Holland. Among countries which were insignificant contributors before the war, but are now relatively important sources of supply, are China, Belgium, Argentine, Morocco, Canada, South Africa, the United States, and Norway.

In addition to the falling off in Russian offerings, there has been a decline of 3 or 4 per cent in imports from Italy, while those from France, Germany, and Austria-Hungary, which amounted to 10 per cent of the imports in 1913, have practically disappeared from the British market.

Of the quantities of eggs not in the shell, 97 per cent of the supplies (1924) were received from China, the British authorities estimating the number of eggs represented by this trade in 1924 at about 750,000,000.

Ireland.—Irish eggs have found a desirable outlet on the English market, and the Irish Free State is contesting with Denmark for the leading place on this market.

TABLE 83

DENMARK—NUMBER OF POULTRY—1888, 1893, 1898, 1903, 1909, 1914–1925

Year	Chickens	Turkeys	Ducks	Geese
1888	4,592,000	32,000	644,000	214,000
1893	5,856,000	41,000	724,000	230,000
1898	8,767,000	52,000	803,000	211,000
1903	11,555,000			
1909	11,816,000		792,000	119,000
1914	15,140,000		1,021,000	
1915				
1917	12,288,000			
1918	9,884,000			
1919	12,134,000			
1920	14,395,000*			
1921	17,803,000*			
1922	19,184,000*			
1923	20,029,000*	51,000	793,000	283,000
1924	20,084,000*			
1925	20,093,000*			

*Includes South Jutland Province where poultry amounted to 408,000 in 1920 and 618,000 in 1921.

Sources of data: Years 1888–1922, information furnished author by Bureau of Agricultural Economics, Washington, D. C. Years 1923–1925, "Anvendelsen af Landbrugsarealet og Kreaturholdet," 1925. Copenhagen, Denmark.

Denmark.—With an area but 10.6 per cent of that of California, Denmark has built up an egg export trade which should attract the attention of every poultryman. The total number of chickens in the kingdom is not large, numbering approximately 20,000,000.

TABLE 84

DENMARK—IMPORTS AND EXPORTS OF EGGS, 1900–1925

(Fresh, Preserved and Unspecified)

Year	Imports		Exports	
	Shell eggs, dozens	Whites and yolks, pounds	Shell eggs, dozens	Whites and yolks, pounds
1900	3,098,830	.....	27,646,617	.....
1901	5,275,563	.....	31,866,492	.....
1902	4,587,760	.....	36,401,669	.....
1903	5,443,116	.....	38,737,972	.....
1904	5,974,761	.....	35,675,683	.....
1905	5,713,105	.....	34,552,951	.....
1906	5,081,463	.....	32,940,012	.....
1907	3,443,196	.....	33,508,836	.....
1908	2,158,247	.....	35,422,458	.....
1909	2,793,222	406,308	32,010,365	.....
1910	1,922,756	611,556	33,937,462	.....
1911	2,207,912	556,000	35,850,233	2,205
1912	2,234,911	521,388	32,025,886	20,723
1913	2,053,585	532,631	37,870,152	6,834
1914	1,796,595	386,246	38,103,976	18,960
1915	1,124,955	409,615	40,159,894	212,082
1916	235,491	383,821	40,095,396	21,605
1917	.....	83,113	36,982,354	2,645
1918	.....	.....	27,312,907	441
1919	2,167	380,294	28,220,034	5,512
1920	94,663	629,413	45,515,179	1,323
1921	85,663	290,568	54,004,506	9,480
1922	414,150	557,323	61,256,050	1,543
1923	577,500	.....	66,475,000	.....
1924	.....	.....	69,373,333	.....
1925	.....	.....	67,223,333	.....

Sources of data: Years 1900–1923, information furnished author by Bureau of Agricultural Economics, Washington, D. C. Years 1924–1925, "Landbrugsraadets Meddelelser," **21**, 1925. Copenhagen, Denmark.

The exports during the past few years have numbered over sixty million dozens annually, of which England has taken the largest part. It is safe to say that this export has been built up on quality based upon a most careful system of grading and packing.

Germany.—Before the Great War, Germany imported even larger amounts of eggs than the United Kingdom. The yearly average for 1909–1913 was 228,279,000 dozens while for Great Britain it was 190,015,000 dozens during the same period. Since the close of the war, the imports appear to be rapidly regaining their former importance.

During the first eight months of 1924, 56,824,250 dozens in the shell were imported. The imports of egg products from China are again assuming importance. In proportion to her population Germany has rather a small poultry population. Poultry in 1925 numbered 71,300,000, which is .5 per cent less than in 1924, and .8 per cent less than in 1913. The decrease has been in ducks and geese, as the number of chickens in 1925 totaled 63,900,000, which is the same as for 1913, and an increase of .4 per cent over 1924.

Germany is also an important exchange center for eggs coming from Russia, Austria, and Bulgaria. Some of the best German eggs are exported, lower grades from other foreign countries replacing those which are exported.

Russia.—In the discussion of competition, Russia has all but been left out of consideration, yet in the few years before the Great War between 250,000,000 and 300,000,000 dozen eggs were exported, or more than 40 per cent of the total world exports. After the war other European nations increased their flocks and as a result exports have increased from a considerable number of nations comparatively insignificant in this trade before the war.

In 1923, Russia again began to ship eggs. The potentialities of egg production in Russia are enormous. *Information from government officials indicates that large areas of Russia are growing corn, and as a result there undoubtedly will be an increase in egg production.

The rapid growth in the number of poultry kept in Russia is shown in table 85.

TABLE 85

POULTRY IN RUSSIA, 1923–1925

(Thousands—i.e., 000 omitted)

Year	Chickens	Geese	Ducks	Turkeys
1923	70,374	5,000	1,646	360
1924	103,690	5,971	2,758	507
1925	118,410	6,246	2,655	659

Source of data: Landbrugsraadets Meddelelser **17**: 255, 1926, Copenhagen, Denmark.

During the past three years the U. S. Department of Commerce reports the following egg exports from Russia:

	Carloads	Percentage of pre-war exports
1922–1923	320	1.3
1923–1924	2,400	10.0
1924–1925	5,000	21.0

* Information to the author.

Expressed in tons, the following are the figures for calendar year egg exports:*

1923	6,200
1924	31,800
1925	59,300

The Department of Commerce states, "During the first quarter of the 1925–1926 operative year, there were exported 2200 carloads of eggs, which constitutes 37.9 per cent of pre-war egg exports. Russian egg exports for the first quarter of 1925–1926 increased 89.9 per cent, compared with exports for the corresponding period of 1924–1925."

TABLE 86

Russia—Exports of Eggs, Egg Yolks and Egg Whites, 1900–1912, 1914, 1925

Year	Eggs, dozens	Egg yolks, pounds	Egg whites, pounds
1900	145,234,084	1,648,739	221,012
1901	162,250,000	1,256,227	94,905
1902	185,750,000	1,336,181	144,452
1903	231,254,250		
1904	229,396,833		
1905	249,462,666		
1906	236,097,583		
1907	217,302,083		
1908	215,709,833		
1909	237,061,416		
1910	249,847,000		
1911	306,837,416		
1912	283,083,333		
1913			
1914	282,988,250		
1925	87,250,580		

Sources of data: Information furnished author by Bureau of Agricultural Economics, Washington, D. C. 1925, mimeographed sheet issued by Dept. of Commerce, Washington, D. C. Foodstuffs 'Round the World, Worlds Dairy and Poultry News, Oct. 22, 1926.

The marked progress in the egg export trade during the first quarter of 1925–1926 is ascribed to the system of grading and assorting of export eggs put in practice for the first time in the Soviet export trade. As a result, the quality of Russian export eggs is said to improve continually, and in proportion as egg exports increase, Soviet Russia's part in the world's egg trade is increasing.

During 1924–1925, eggs imported from Russia constituted 7 to 8 per cent of the total English and over 10 per cent of the total German egg imports, while in the first quarter of 1925–1926 the share of Soviet eggs in the total London egg imports was already 17.7 per cent and 33.2 per cent of the total German. About 50 per cent of Russia's total export went to Germany in 1924.

* Landbrugsraadets Meddelelser 17:255, 1926. Copenhagen, Denmark.

The egg season in Russia starts in March (15th to 30th) and ends the last of May. The eggs produced during this season are the so-called spring or grass eggs, which are not very good for export purposes. The second season starts at the beginning of July and ends by September. The eggs produced during this season are called "grain" eggs and are especially fit for export.

Poland.—During the past four years Poland has become a competitor in the international egg market, as the statistics of exports show. In 1922 the country exported 7,490,000 dozen eggs; in 1923, 19,508,000; in 1924, 15,316,000; while during 1925, exports rose to 39,829,773.*

At a recent meeting of the Poland State Agricultural Council, it was resolved to introduce egg standardization as a measure to increase Poland's competing ability abroad.

Esthonia.—This Baltic State, formerly a part of the Russian Empire, has steadily increased its egg exports as is shown in table 87.

TABLE 87

EXPORTS OF EGGS FROM ESTHONIA, 1923–1925

Exports to—	Number of eggs		
	1923	1924	1925
England	54,200	3,246,200	6,403,700
Sweden	3,393,200	4,067,700	2,280,300
Germany	23,900	1,805,200	5,547,100
Finland	690,100	820,000	324,300
Denmark	7,200	.....	1,400
Total	4,168,700	9,939,100	14,556,800

Sources of data: Mimeographed sheet issued by Dept. of Commerce, Washington, D. C. Foodstuffs 'Round the World, World Dairy and Poultry News, May 21, 1926.

Latvia.—Another of the countries formed from the former empire of Russia—Latvia—plans to allow for export only fresh eggs weighing not less than 42 grams; and all exports before shipment will be examined by experts of the Chamber of Commerce.†

Lithuania (part of former Russian Empire).—Eggs are the principal item of foodstuffs exported from Lithuania. During 1925, 64,976,000 eggs were exported compared with 84,700,000 in 1924. This drop was caused by internal complications.

* Department of Commerce, mimeographed sheets, Foodstuffs 'Round the World, World Dairy and Poultry News, May 12, 1926.

† U. S. Dept. of Commerce, mimeographed sheets, Foodstuffs 'Round the World, World Dairy and Poultry News, April 9, 1926.

France.—Before the war, France imported more eggs than were exported, but recently there has been a slight tendency for the exports to increase more rapidly.

Belgium and Holland.—Both Belgium and Holland have been importers although Holland has been of importance as a trading center for eggs.

Italy.—The Italian exports before the war had attained considerable volume. During the years 1922 and 1923, the exports were only half of those of the pre-war years.

Hungary.—Although with an area much restricted as a result of the war, the export trade of Hungary is rapidly recovering. Exports of eggs in 1925 amounted to 21,010,000 dozens against 8,825,000 dozens in 1924. Poultry exports amounted to 21,051,500 pounds in 1925 as compared with 14,609,000 pounds in 1924.† Before the war the dual monarchy had a net export of approximately 90,000,000 dozen eggs.

Roumania.—During 1926 (first six months) egg exports totaled 8,386,491 dozen compared with 3,558,681 in 1925.

Bulgaria.—The estimated 1924 exports were 13,200,000 dozen eggs, compared with 7,920,000 dozens in 1923 and 26,400,000 in 1912. The Bulgarian exports in the past have gone mainly to Austria, Germany and France. Bulgarian eggs in 1924 were reported on the New York market.

Egypt.—Northern Africa comprises an area which has contributed greatly to the international trade in eggs. Most important in the export trade is Egypt. The following table shows the quantity of eggs exported during the past ten years:

TABLE 88

Exports of Eggs from Egypt, 1915–1925

Year	Quantity, number
1915	245,644,000
1916	235,369,000
1917	188,004,000
1918	83,620,000
1919	70,545,000
1920	67,113,000
1921	91,801,000
1922	160,252,000
1923	156,536,000
1924	204,184,000
1925	107,542,000*

* First ten months.

Sources of data: Mimeographed sheet issued by Dept. of Commerce, Washington, D. C. Foodstuffs 'Round the World, World Dairy and Poultry News, Feb. 26, 1926.

† U. S. Dept. of Commerce, mimeographed sheets, Foodstuffs 'Round the World, World Dairy and Poultry News, Sept. 10, 1926.

Evidence points to a further decline during 1926, owing to a restriction placed on exports during the first three months of the year, when they are normally larger than at other times.

Nine-tenths of the total quantity of eggs exported from Egypt are shipped to England. Egyptian eggs enjoy a peculiar advantage by coming upon the market plentifully at a time of the year when production in other countries ceases.

Algeria.—Exports from Algeria increased from 114,640 dozens in 1909 to 2,452,958 in 1919; 4,513,551 in 1924; and 4,835,423 in 1925.*

Morocco.—During January and February, 1926,* 3,035,000 dozen eggs were exported from Morocco. Of these exports, 2,724,885 dozens were shipped to Spain, 220,460 to Great Britain, and 89,655 to France.

South Africa.—South Africa and other countries of the Southern Hemisphere are of great interest because of the fact that eggs can be placed on the market when supplies of fresh eggs are short in the Northern Hemisphere. During 1925, South Africa exported 2,392,950 dozen fresh eggs,† principally to the British market. This was an increase of 104,160 dozens over the 1924 exports—a gain of 4 per cent.

China.—Statistics as understood in the United States are not known in China. At best such as are available are mere estimates. Poultry farming has long been an important subsidiary industry among Chinese farmers. The following are the estimates of chickens and ducks in China, excluding five provinces, for the years 1917, 1918, and 1919.‡

	Chickens	Ducks
1917	278,705,514	65,137,039
1918	149,648,746	52,249,322
1919	128,550,301	41,397,434

According to various estimates, the average number of eggs from a hen per year is from 72 to 84. The annual yield throughout the country is, therefore, enormous.

Exports were at first only in the form of fresh, preserved, and salt eggs. During the war these shipments were curtailed on account of the lack of transportation, but recovery was rapid in 1920 and 1921. During 1925, according to the Department of Commerce, the first nine months showed a decrease in the exports of shell eggs, 52,781,085 dozens against 57,938,250 for the corresponding period in 1924. On the other hand, egg albument and yolk showed an increase

* Department of Commerce, mimeographed sheets, Foodstuffs 'Round the World, World Dairy and Poultry News, June 2, 1926.

† Department of Commerce, mimeographed sheets, Foodstuffs 'Round the World, World Dairy and Poultry News, April 23, 1926.

‡ Statistics on China furnished to the author in letters from the United States Department of Commerce.

from 41,999,895 pounds during nine months of 1924 to 57,733,190 in 1925. Owing to the difficulties of transportation, indications are that the exports in products other than shell eggs have increased most rapidly. This has been especially the case with egg albumen and yolks, where a steady increase can be noted—the exports in 1908

TABLE 89

Exports of Eggs and Egg Products from China, 1924

Exported to—	Eggs, fresh and preserved Thousands	Eggs, frozen Piculs*	Egg albumen and yolk Piculs*
Hongkong	122,301	.....	74
Macao	6,342	.....	.....
French Indo-China	3	.....	8
Siam	118	.....	.....
Singapore, Straits, etc.	11,422	.....	52
Dutch Indies	15	.....	.....
British India	709	.....	66
Turkey, Persia, Egypt, Aden, etc.	22	.....	508
Great Britain	117,437	221,622	221,285
Norway	3	.....	9
Germany	4	475	54,126
Belgium	27	1,295	14,664
France	4,756	3,329	45,129
Russia	1,626	.....	.....
Korea	92	.....	.....
Japan (including Formosa)	644,093	6	1,467
Philippine Islands	33,010	.....	146
United States	2,273	24,563	86,850
Netherlands	.....	1,102	21,590
Denmark	.....	.....	2,970
Danzig	.....	.....	284
Spain	.....	.....	168
Italy	.....	.....	6,732
Canada	.....	.....	1,125
South America	.....	.....	503
Australia, New Zealand, etc.	.....	.....	192
Total	944,253	252,392	457,948

*One picul=133⅓ lbs.

Source of data: Information furnished author by Dept. of Commerce.

TABLE 90

Exports of Eggs and Egg Products from China, 1921–1924

Year	Pieces (Eggs)	Pounds	
	Eggs, fresh and preserved	Egg albumen and yolk	Frozen eggs
1921	1,180,714,000	52,376,136	12,168,236
1922	1,181,980,000	57,641,722	36,812,841
1923	1,101,049,000	50,337,987	50,048,541
1924	944,253,000	61,059,732	33,652,300
1925	784,509,000	76,083,865	57,473,718

Sources of data: 1921–1924, information furnished author by Dept. of Commerce. 1925, The Chinese Economic Monthly **3**: 8, 1926.

being 8,450,589 pounds against 71,059,700 in 1924. The exports of frozen eggs have not shown such a steady upward trend but have been characterized by rather violent fluctuations. The average exports for the three first years available, 1914–1916, give evidence of approximately 20,000,000 pounds of frozen eggs, while during the past three years, 1922–1924, there seems to be an increase of 100 per cent, or 40,000,000 pounds.

TABLE 91

INTERNATIONAL TRADE IN LIVE POULTRY, AVERAGE 1909–1913, ANNUAL, 1921–1923

(Thousands—i.e., 000 omitted)

Country	Average, 1909–1913		1921		1922		1923, preliminary	
	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports
Principal exporting countries:								
Austria							942	14
Austria-Hungary	2,453	4,114						
Austria-Hungary[1]	8,435	16,617						
Canada	15	[2]	249	857	418	609	473	579
China	15	2,462	36	3,871	31	3,743	27	3,639
Finland	17	30	[3]	[3]				
Italy[1]	2,010	9,606	786	2,185	3,967	2,575	5,552	2,742
Netherlands	[4]	[4]	24	129	63	339	83	247
Principal importing countries:								
Belgium[1]	1,797	685	763	383	1,299	1,442	1,024	2,158
Denmark	26	2	2	[3]	2	[3]		
France[1]	8,967	795	11,345	118	17,504	294	21,252	1,041
Germany:								
Geese	8,111	32	297	[5] 1	54	1	25	[3]
Other poultry[1]	29,829	278	256	[5] 55	339	76	115	36
Switzerland[1]	1,382	28	1,144	4	879	4	987	5
United Kingdom	877	50	61	8	239	14	1,170	18
Total reported in number	11,514	6,690	669	4,866	807	4,706	2,720	4,497
Total reported in pounds	52,420	28,009	14,294	2,745	23,988	4,391	28,930	5,982

[1] 1,000 pounds. [3] Less than 500. [5] Eight months, May-December.
[2] Expressed only in value. [4] Not separately stated.
Source of data: U. S. D. A. Yearbook 1924, p. 996.

The destinations of the exports are given in table 89, p. 143.

Japan and Great Britain are the most important foreign markets; next are Hongkong and the United States. Although the production of eggs in China is undoubtedly enormous, it is small in comparison to the population.

Australia.—On account of the reversal of seasons, Australia has been able to place eggs on the English market at a profit and expectations are that increased quantities will be shipped to England in the future. Although Australian eggs must travel half way around the world to reach the English market, the prices obtained in 1925 were

more satisfactory than those on the home market. The exports to England are increasing.

The Australian product is a white egg, as most of the chickens are White Leghorns.

New Zealand.—Exports of eggs from New Zealand during 1923 amounted to 109,990 dozens which during 1924 increased to 200,070 dozens. No eggs were exported during 1925 on account of strike conditions. The poultry population of New Zealand in 1924 was approximately four million.

Japan.—Although the poultry industry is of recent origin, Japanese eggs have appeared on American markets. Japan, however, imports large quantities of eggs from China.

TABLE 92

International Trade in Killed Poultry, Average, 1909–1913, Annual, 1921–1923

(Thousand pounds—i. e., 000 omitted)

Country	Average, 1909–1913		1921		1922		1923, preliminary	
	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports
Principal exporting countries:								
Austria Hungary	371	9,854	.....	.....	.....	.....	.....	.....
Belgium	232	1,649	149	89	159	290	138	902
China	(1)	1,211	(1)	1,644	(1)	1,989	(1)	2,837
Finland	373	1,162	1	876	.....	797	.....	914
France	2,920	12,296	1,997	5,334	3,659	6,627	3,672	11,141
Italy	288	6,019	957	2,335	1,029	3,786	792	4,075
Netherlands	(1)	(1)	37	502	44	933	68	1,653
Principal importing countries:								
Austria	.....	.....	3,012	288	.....	.....	7,560	491
Cuba	76	.....	866	.....	147	.....	.....	.....
Denmark	1,765	10	418	25	866	39	.....	.....
Germany	18,875	535	95	[2] 51	65	69	166	44
Norway	63	.....	24	2	75	(3)	.....	.....
Sweden	349	12	227	4	284	2	.....	.....
Switzerland	8,319	13	4,196	2	4,245	4	4,884	12
United Kingdom	10,994	127	8,818	185	18,644	272	34,825	321
Total, 15 countries	44,625	32,888	20,797	11,337	29,217	14,808	52,105	22,390

[1] Not separately stated. [2] Eight months, May-December. [3] Less than 500.
Source of data: U. S. D. A. Yearbook 1924, p. 996.

International trade, Poultry.—The international trade in live and killed poultry is largely confined to Europe (tables 91 and 92). The United Kingdom, Canada, and Mexico import considerable quantities of poultry from the United States while Canada, Hongkong, and Argentine export considerable quantities to the United States. For a complete summary of the foreign trade for the United States during 1924, the reader should consult tables 72 and 73, pp. 125–128.

COST OF PRODUCING EGGS, SONOMA COUNTY, CALIFORNIA

By M. W. BUSTER, Assistant Farm Advisor, Sonoma County
L. W. FLUHARTY, Farm Management Demonstrator

Data on the cost of producing eggs which is presented in the following pages of this bulletin covers a period of one year from November 1, 1924, to October 31, 1925 (a year of relatively high egg prices). This project was started for the purpose of conducting a comprehensive and accurate poultry survey and in addition to obtain data on costs and income from commercial poultry farms of different sizes and types. During a series of years it is hoped that the efficiency of various management factors on commercial poultry farms can be determined. The information gathered from this project, simply indicates valuable possibilities in this type of study. The results should NOT be regarded as final. Thirty-eight poultrymen in Sonoma County kept complete cost records on their poultry flocks. Each coöperator sent a monthly summary of costs to the farm advisor's office where they were checked for errors and omissions. This method of procedure was followed in order to secure accurate information.

SIZE OF FLOCKS

The 38 flocks involved in this study ranged in size from an average of 144 to 5171 birds per flock. For the purpose of studying the relation of size of flocks to profits and various other factors the records were divided into three groups. Group I includes all flocks with an average of less than 751 hens; Group II, flocks having from 751 to 1500 hens; and Group III, those having more than 1500 birds. The size of the flock was based on the average number of hens throughout the year.

Relation of size of flocks to profits.—From this study indications are that the size of the flock bears a direct relationship to the success of the poultry keeper. This factor is of special importance to those producers who depend upon poultry as the major source of income. The small flocks may be a profitable venture for the operator who devotes to its care only time not otherwise profitably employed (table 93). On the other hand, the medium-sized flock (Group II) appears to be too large for a minor enterprise, but too small for efficient management. This fact is apparent when net profits on all three groups are compared.

The effect of size of business upon profits is again evident when a comparison is made of farm income from the three groups. The farm income from Group III is the only one which is fully sufficient to maintain a satisfactory standard of living for an American farm family.

*TABLE 93

Relation of Size of Flocks to Profits on 38 Poultry Farms, Sonoma County, California. November 1924–October, 1925

	Group I	Group II	Group III	All farms
Number of flocks	6	14	18	38
Average size of flocks	537	1,051	2,488	1,651
Average investment per flock	$2,330	$5,688	$10,879	$7,634
Gross income	$2,769	$4,468	$10,918	$7,255
Total expenses	2,254	4,401	9,400	6,430
Net profit	515	67	1,518	825
Farm income	1,100	1,346	3,373	2,267
Labor income	959	1,006	2,728	1,813

* Gross income includes income from all sources as itemized in Table 95. Total cost includes all expense as itemized in Table 96. Net income is the difference between gross income and total expense. Farm income is the gross income minus operating expense (operating expense includes all expenditures for feed, stock replacements, taxes, water and hired labor; operating expense does not include operator's labor or interest on investment). Labor income is the amount received by operator for his labor after 6% interest on investment has been deducted from the farm income.

Relation of size of flock to investment.—Land, buildings and equipment constituted the largest items of investment on 35 of the 38 farms in the study. These items made up 71 per cent of the total investment; while feed, carried throughout the year, and stock, constituted the other 29 per cent of invested capital (table 94).

TABLE 94

Average Investment in Land, Buildings, Equipment, Feed and Supplies, and Stock, on 35 Poultry Farms, Sonoma County, California. November, 1924–October, 1925

	Group I		Group II		Group III		All farms	
Number of flocks	6		12		17		35	
Average size of flocks	537		1,048		2,506		1,669	
	Average investment		Average investment		Average investment		Average investment	
	Per farm	Per hen	Per farm	Per hen	Per farm	Per hen	Per farm	Per hen
Land	$741.66	$1.38	$1,550.00	$1.48	$2,964.71	$1.18	$2,098.57	$1.26
Buildings	658.33	1.23	2,154.16	2.06	3,151.47	1.26	2,382.14	1.43
Equipment	152.50	.28	672.08	.64	1,368.71	.55	921.37	.55
Feed and supplies	104.80	.20	66.88	.06	193.68	.08	134.97	.08
Stock	673.11	1.25	1,245.18	1.19	3,200.09	1.28	2,096.64	1.26
Totals	$2,330.40	$4.34	$5,688.30	$5.43	$10,878.66	$4.35	$7,633.69	$4.58

This table indicates a less efficient use of capital in the intermediate sized flocks than in either the small or the large flocks. The investment in land, buildings, and equipment per hen is more than 40 per cent greater than for either of the other two groups. Fixed capital invested in these items was 77 per cent of the total investment as compared with less than 69 per cent for Groups I and III.

Relation of size of flock to income.—The sale of market and hatching eggs comprised 93 per cent of the total income on all 38 farms where records were kept (table 95).*

TABLE 95

RELATION OF SIZE OF FLOCKS TO INCOME ON 38 POULTRY FARMS, SONOMA COUNTY, CALIFORNIA. NOVEMBER 1924–OCTOBER, 1925

	Group I		Group II		Group III		All farms	
Number of flocks	6		14		18		38	
Average size of flocks	537		1,051		2,488		1,651	
	Amount	Per cent of total	Amount	Per cent of total	Amount	Per cent of total	Amount	Per cent of total
Market eggs	$2,478.79	89.6	$4,082.65	91.4	$8,730.26	80.0	$6,030.91	83.1
Hatching eggs	86.87	3.1	46.16	1.0	1,483.27	13.6	733.33	10.1
Poultry stock	145.13	5.2	214.79	4.8	421.99	3.9	301.94	4.2
Miscellaneous	14.36	.5	26.82	.6	65.12	.6	43.00	.6
Eggs consumed	42.68	1.6	97.66	1.9	216.90	1.9	145.62	2.0
Totals	$2,768.83	100.0	$4,468.08	100.0	$10,917.54	100.0	$7,254.80	100.0

The most important single source of income on all farms was from the sale of market eggs. In the first two groups, the sale of hatching eggs was of little importance, but in Group III receipts from hatching eggs comprised almost 14 per cent of the total.

Relation of size of flock to expense.—All items of expense have been included in table 96 except the cost of marketing, i.e., delivery to market, grading, packing, inspection and commission. Cost of marketing has been deducted from prices received at the market in order to get the net farm price.

More than one-half of the total expense (53.8%) on all farms was for feed alone, while about one-fifth (19.1%) was for family and hired labor (table 96). The outlay for stock made up the next highest item (17.3%). Miscellaneous items such as water, taxes, insurance and

* Reliable estimates indicate that the income from eggs in White Leghorn flocks in Central California is from 85–87 per cent of the total income. Interview, R. H. McDrew, Poultry Producers of Central California, Nov. 9, 1926.

TABLE 96

Relation of Size of Flock to Expenses on 38 Poultry Farms, Sonoma County, California. November 1924–October, 1925

	Group I		Group II		Group III		All farms	
Number of flocks	6		14		18		38	
Size of flocks	537		1,051		2,488		1,651	
	Amount	Per cent of total	Amount	Per cent of total	Amount	Per cent of total	Amount	Per cent of total
Feed	$1,272.85	56.5	$2,254.44	51.1	$5,127.27	54.5	$3,460.27	53.8
Stock	331.21	14.7	687.01	15.6	1,707.32	18.2	1,114.15	17.3
Hired labor	1.99	.....	53.56	1.2	463.97	4.9	239.82	3.7
Family labor	444.65	19.7	938.74	21.3	1,210.13	12.9	989.28	15.4
Miscellaneous items	32.76	1.5	66.18	1.5	101.61	1.1	77.69	1.2
Water, taxes, insurance	30.69	1.4	61.03	1.6	143.97	1.5	95.53	1.5
Interest on investment	140.05	6.2	340.01	7.7	645.62	6.9	453.20	7.1
Totals	$2,254.20	100.0	$4,400.97	100.0	$9,399.89	100.0	$6,429.94	100.0

interest on investment made up a little less than one-tenth (9.8%) of the total. The cost of feed comprises 70 per cent of the total cash expense when not figuring operator's labor and interest on investment.

Relation of size of flock to cost of producing eggs.—Feed, which is the largest single item of expense, was highest per hen but lowest per dozen eggs for small sized flocks (Group I). The comparatively low feed cost per dozen in this group is accounted for by the larger number of eggs produced per hen (table 97).

TABLE 97

Relation of Size of Farm to Cost of Producing Eggs on 38 Sonoma County, California, Farms. November, 1924–October, 1925

	Group I		Group II		Group III		All farms	
Number of flocks	6		14		18		38	
Size of flocks	537		1,051		2,488		1,651	
Average number of eggs per hen	160		138		136		138	
	Per hen	Per doz.	Per hen	Per doz.	Per hen	Per doz.	Per hen	Per doz.
Average cost	*Dollars*	*Cents*	*Dollars*	*Cents*	*Dollars*	*Cents*	*Dollars*	*Cents*
Feed	2.36	17.7	2.14	18.7	2.06	18.2	2.10	18.2
Stock bought	.62	4.6	.65	5.7	.59	5.2	.62	5.4
Stock decrease in inventory	.....	.....	.....	.....	.09	0.9	.06	0.5
Labor	.83	6.2	.94	8.2	.67	5.8	.74	6.5
Water, taxes, insurance	.06	0.4	.06	0.5	.06	0.5	.06	0.5
Interest on investment, 6%	.26	2.0	.32	2.8	.26	2.3	.26	2.4
Other overhead	.06	0.5	.07	0.5	.04	0.4	.05	0.4
Total cost	4.19	31.4	4.18	36.4	3.77	33.3	3.89	33.9

Those flocks with an approximate average of 1000 birds (Group II) had a labor cost higher than either of the other two groups. Apparently a flock of this size is too large to be handled as a minor enterprise, but too small for efficient use of the entire time of the operator. Items of expense other than feed and labor were quite uniform for all sizes of flocks.

Relation of size of flock to profits.—The gross income per hen was higher in the small flocks (Group I) than in the intermediate or large flocks because of the larger egg production per hen. On the other hand, the gross income per dozen was lower in the intermediate sized flocks than in the other two groups.

*TABLE 98

Relation of Size of Flocks to Profits on 38 Farms in Sonoma County, California. November 1924–October, 1925

	Group I		Group II		Group III		All farms	
Number of flocks	6		14		18		38	
Average size of flocks	537		1,051		2,488		1,651	
Average number of eggs per hen	160		138		136		138	
	Per hen	Per doz.	Per hen	Per doz.	Per hen	Per doz.	Per hen	Per doz.
Average cost	*Dollars*	*Cents*	*Dollars*	*Cents*	*Dollars*	*Cents*	*Dollars*	*Cents*
Gross income	5.15	38.5	4.25	37.0	4.38	38.7	4.39	38.3
Total cost	4.19	31.4	4.18	36.4	3.77	33.3	3.89	33.9
Net profit	.96	7.1	.07	.6	.61	5.4	.50	4.4
Farm income	2.05	15.3	1.28	11.1	1.36	11.9	1.37	12.0
Labor income	1.78	13.3	.96	8.3	1.10	9.7	1.10	9.6

* See footnote to Table 93.

The total cost per hen was smaller in Group III because of lower feed and labor cost for this group. The average net income of Group I was much higher than that of either of the other two groups, as was also the farm and labor income per hen. A study of all factors indicates that the higher farm and labor incomes in Group I were due in a large part to the relatively large number of eggs per hen. The higher farm and labor income per hen for Group III over Group II was due to the more efficient management of the flock, particularly with reference to labor.

Relation of size of flock to various management factors.—The average production of eggs per hen was smaller in the large sized flocks (Groups II and III) than in the smaller flocks. This difference in egg production may be explained in part at least because (1) the small flocks were culled more heavily, and (2) their mortality was about 8 per cent less (table 99).

Although the amount of feed consumed per hen was heaviest in the small flocks, the amount of feed required to produce a dozen eggs was less because of the heavier egg production per hen.

*TABLE 99

Relation of Size of Farm to Some Factors which Influence Profits on 38 Sonoma County, California, Poultry Farms. November, 1924–October, 1925

	Group I	Group II	Group III	All farms
Number of farms	6	14	18	38
Size of flocks	537	1,051	2,488	1,651
Number of eggs per hen	160	138	136	138
Per cent production	43.8	37.8	37.3	37.8
Per cent culled	34.6	35.6	25.9	28.7
Per cent mortality	12.8	19.2	20.9	20.1
Per cent replacements	42.7	52.5	42.5	44.8
Per cent added	45.6	54.4	43.1	45.7
Pounds grain and mash per hen	76.3	70.0	73.4	72.7
Pounds grain and mash per dozen of eggs	5.71	6.13	6.31	6.21
Average price of eggs	36.3	35.0	37.0	36.4
Investment per hen	4.34	5.41	4.32	4.58

* Percentage culled is based on the number of hens sold for any purpose during the year, as related to the average number of hens in the flock during the year. Percentage mortality is the percentage of hens which died during the year as related to the average number of hens in the flock. Percentage replacements is the number of hens it would have been necessary to add in order to replace hens which died or which were sold during the year. Percentage added is the relation of the number of hens actually added to the original number at the beginning of the study.

PRODUCTION AS RELATED TO COSTS AND PROFITS

The 38 records were divided into four groups on a basis of the average number of eggs laid per hen for the purpose of making a study of the effect of quantity of production upon costs and profits. Those farms having an average production from 113 to 128 eggs per hen were included in Group I; flocks averaging from 129 to 144 in group II; those averaging from 145 to 155 in Group III; and those from 145 to 180 in Group IV.

Relation of number of eggs per hen to cost of production.—The relation of number of eggs per hen to feed cost per hen and per dozen is very marked. An increase in the average number of eggs produced per hen apparently increases the feed cost per hen, but decreases the cost per dozen (table 100).

There was an increase of 33.6 per cent in average egg production between Groups I and IV which was accompanied by only a 5.4 per cent increase in cost of feed consumed. The total cost of maintaining a hen increased slightly as the average number of eggs per hen increased, but the range of increase from Group I to Group IV is small as compared with the increase in production.

TABLE 100

RELATION OF NUMBER OF EGGS PER HEN TO COST OF PRODUCTION ON 38 SONOMA COUNTY, CALIFORNIA, POULTRY FARMS. NOVEMBER, 1924–OCTOBER, 1925

	Group I		Group II		Group III		Group IV		All farms	
Number of farms	10		12		7		9		38	
Size of flocks	1,980		1,675		2,135		875		1,651	
Average number of eggs per hen	122		136		149		163		138	
Average cost	Per hen	Per doz.	Per hen	Per doz.	Per hen	Per doz.	Per hen	Per doz.	Per hen	Per doz.
	Dolls.	*Cts.*	*Dolls.*	*Cts.*	*Dolls.*	*Cts.*	*Dolls.*	*Cts.*	*Dolls.*	*Cts.*
Feed	1.94	19.1	2.10	18.6	2.21	17.9	2.24	16.5	2.10	18.2
Stock bought	.53	5.3	.54	4.8	.52	4.2	.68	5.0	.61	5.4
Stock decrease in inventory			.18	1.6	.28	2.2			.06	0.5
Labor	.61	6.0	.84	7.4	.72	5.9	.89	6.5	.74	6.5
Water, taxes, insurance	.05	0.6	.06	0.5	.06	0.5	.06	0.4	.06	0.5
Interest on investment, 6%	.28	2.7	.29	2.5	.26	2.1	.26	1.9	.27	2.4
Other overhead	.03	0.3	.04	0.4	.07	0.5	.06	0.5	.05	0.4
Total cost	3.44	34.0	4.05	35.8	4.12	33.3	4.19	30.8	3.89	33.9

Relation of number of eggs per hen to profits.—There was an increase of 153 per cent in net profits between the first and fourth groups of farms. This increase was much greater in proportion than the 33.6 per cent in average number of eggs produced per hen (table 101).

TABLE 101

RELATION OF NUMBER OF EGGS PER HEN TO PROFITS ON 38 SONOMA COUNTY, CALIFORNIA, POULTRY FARMS. NOVEMBER 1924–OCTOBER 1925

	Group I		Group II		Group III		Group IV		All farms	
Number of farms	10		12		7		9		38	
Size of flocks	1,980		1,675		2,135		875		1,651	
Average number of eggs per hen	122		136		149		163		138	
Average cost	Per hen	Per doz.	Per hen	Per doz.	Per hen	Per doz.	Per hen	Per doz.	Per hen	Per doz.
	Dolls.	*Cts.*	*Dolls.*	*Cts.*	*Dolls.*	*Ctc.*	*Dolls.*	*Cts.*	*Dolls.*	*Cts.*
Gross income	3.74	36.9	4.37	38.6	4.99	40.4	4.95	36.4	4.39	38.3
Total cost	3.44	34.0	4.05	35.8	4.12	33.3	4.19	30.8	3.89	33.9
Net profit	.30	2.9	.32	2.8	.87	7.1	.76	5.6	.50	4.4
Farm income	1.07	10.5	1.31	13.9	1.61	13.0	1.84	13.5	1.37	12.0
Labor income	.79	7.8	1.03	10.9	1.35	10.9	1.58	11.6	1.10	9.6

Group III, which produced an average of 149 eggs per hen, showed an even greater net profit per hen than did Group IV, which had an average of 163 eggs per hen. This condition existed largely because of the higher labor cost in Group III. The relationship between

number of eggs per hen and both farm and labor income is also quite striking. An increase of 50 per cent in egg production was accompanied by a 72 per cent greater farm income and a 100 per cent increase in labor income.

Relation of number of eggs per hen to other factors in egg production.—The general tendency apparent in table 102 is for high egg production to be accompanied by heavy culling.

TABLE 102

Relation of Eggs per Hen to Some Factors which Influence Profits on 38 Sonoma County, California, Poultry Farms. November 1924–October 1925

	Group I	Group II	Group III	Group IV	All farms
Number of farms	10	12	7	9	38
Size of flocks	1,980	1,675	2,135	875	1,651
Average number of eggs per hen	122	136	149	163	138
Per cent production	33.3	37.2	40.7	44.7	37.8
Per cent culled	21.1	31.7	28.2	38.1	28.7
Per cent mortality	22.4	19.7	21.2	13.3	20.1
Per cent replacements	42.5	46.4	43.6	48.3	44.8
Per cent added	56.6	39.8	36.9	52.4	45.7
Pounds grain and mash per hen	72.4	69.7	76.2	73.0	72.7
Pounds grain and mash per dozen	6.88	6.17	6.14	5.40	6.21
Average price of eggs	35.3	36.7	38.6	34.3	36.4
Investment per hen	4.65	4.90	4.34	4.38	4.58

Many poultrymen believe that high egg production is accompanied by heavy mortality. The table above indicates that such was not the case in this study, but that those methods of flock management which caused high egg production also maintained the health of the flock. This condition might also be brought about by heavy culling. This table also indicates that while the pounds of grain and mash consumed per hen did not vary greatly with numbers of eggs produced, that the quantity of feed per dozen decreased quite uniformly as number of eggs per hen became larger.

HATCHING AND COMMERCIAL EGG FARMS

Of the 38 coöperators in the study, 11 sold an average of 20 per cent of their total egg production for hatching purposes. Five of the hatching egg producers trap-nested their flocks and six of them did not. A tabulation was made of these groups in order to make a study of the relative cost of egg production (table 103).

Feed cost, as might be expected in view of the greater egg production, was highest for the hatching egg flocks. The same condition holds regarding labor cost, which was 31 per cent larger for the trap-nested flocks than for hatching egg flocks not trap-nested, and 43 per cent larger than commercial egg farms. The total cost of keeping a hen in the trap-nested flocks was 11.4 per cent more than in flocks not trapped and 25.8 per cent higher than for commercial egg producers.

TABLE 103

FACTORS WHICH INFLUENCED COST OF PRODUCTION ON HATCHING EGG AND COMMERCIAL EGG FLOCKS. NOVEMBER 1924–OCTOBER 1925

	Hatching egg flocks				Commercial egg flocks	
	Trap-nested flocks		Flocks not trap-nested			
Number of flocks	5		6		27	
Size of flocks	2,303		1,626		1,535	
Average number of eggs per hen	147		143		135	
	Per hen	Per doz.	Per hen	Per doz.	Per hen	Per doz.
	Dollars	*Cents*	*Dollars*	*Cents*	*Dollars*	*Cents*
Feed	2 19	18.2	2.27	19.1	2.03	18.1
Stock bought	.45	3.7	.50	4.2	.58	5.1
Stock decrease in inventory	.51	4.3	.25	2.1		
Labor	.97	8.0	.74	6.2	.68	6.1
Water, taxes, insurance	.06	0.5	.06	0.5	.06	0.5
Interest on investment, 6%	.32	2.7	.27	2.2	.26	2.3
Other overhead	.09	0.7	.04	0.4	.04	0.3
Total	4.59	38 1	4.12	34.7	3.65	32.4

Comparative profits on hatching egg and commercial egg farms.—Trap-nest breeders made a little larger net profit per hen than did either hatching egg producers not trap-nesting or commercial egg operators (table 104).

When the farm income is considered, the operators who trap-nested are but little better off than the commercial egg producers, while hatching egg producers not trapping made 11 cents per hen greater farm income. Farm income was smaller for trap-nest operators than either of the other two, because of the heavy investment in buildings and equipment. Had the management of the commercial flocks been such as to have produced as many eggs as did the trap-nest flocks, their farm income would have been $1.53 per hen.

TABLE 104

Profits from Hatching Egg and Commercial Egg Farms

	Hatching egg flocks				Commercial egg flocks	
	Trap-nested flocks		Flocks not trap-nested			
Number of flocks	5		6		27	
Size of flocks	2,303		1,626		1,535	
Average number of eggs per hen	147		143		135	
	Per hen	Per doz.	Per hen	Per doz.	Per hen	Per doz.
	Dollars	*Cents*	*Dollars*	*Cents*	*Dollars*	*Cents*
Gross income	5.18	43.0	4.65	39.1	4.12	36.6
Total cost	4.59	38.1	4.12	34.7	3.65	32.4
Net profit	.59	4.9	.53	4.4	.47	4.2
Farm income	1.39	11.6	1.50	12.6	1.34	11.9
Labor income	1.06	8.9	1.24	10.9	1.08	9.6

TABLE 105

Chickens on Farms—Number by Divisions and States 1890, 1900, 1910, 1920 and 1925

Division and State	1890	1900	1910	1920	1925*
United States	258,871,125	233,566,021	280,340,959	359,537,127	.....
Geographic Divisions:					
New England	6,315,804	6,440,678	6,840,404	5,803,507	8,138,168
Middle Atlantic	21,794,146	21,511,436	24,448,840	27,452,439	34,828,825
East North Central	58,929,771	58,104,189	69,471,093	84,516,275	89,652,590
West North Central	73,772,352	65,364,879	85,192,266	105,347,758	123,076,892
South Atlantic	39,774,247	22,293,912	25,626,503	36,407,610	.....
East South Central	36,686,526	22,965,751	24,495,050	34,031,878	.....
West South Central	20,423,478	27,333,880	29,176,267	39,919,045	.....
Mountain	1,709,813	3,116,639	5,467,234	9,524,240	.....
Pacific	5,464,988	6,434,657	9,623,302	16,474,375	.....
New England:					
Maine	1,411,185	1,564,853	1,704,900	1,403,284	1,900,008
New Hampshire	934,322	870,461	903,413	771,233	1,207,034
Vermont	789,278	806,451	911,730	799,797	941,014
Massachusetts	1,623,605	1,625,269	1,709,934	1,455,193	2,029,819
Rhode Island	482,370	500,618	392,704	253,607	361,393
Connecticut	1,075,044	1,073,026	1,217,723	1,120,393	1,698,900
Middle Atlantic:					
New York	8,421,667	8,964,736	10,232,498	10,414,600	13,408,720
New Jersey	2,990,698	1,993,594	2,320,439	2,534,371	4,113,622
Pennsylvania	10,381,781	10,553,106	11,895,903	14,503,468	17,306,493
East North Central:					
Ohio	13,659,359	14,269,525	16,850,099	20,232,637	20,927,460
Indiana	12,307,903	11,103,006	13,216,024	16,754,293	17,355,369
Illinois	21,463,525	16,600,728	20,563,850	25,120,643	25,738,132
Michigan	5,852,690	8,033,531	9,698,401	10,913,645	12,578,979
Wisconsin	5,646,294	8,097,399	9,142,719	11,495,057	13,052,650

TABLE 105—(*Continued*)

Division and State	1890	1900	1910	1920	1925*
West North Central:					
Minnesota	4,448,831	7,730,940	10,293,843	13,212,619	16,408,080
Iowa	20,201,706	18,907,673	22,691,641	27,746,510	30,275,338
Missouri	22,785,848	14,903,601	19,910,221	24,883,985	28,222,087
North Dakota	804,388	1,409,285	3,095,026	4,328,567	5,181,246
South Dakota	2,292,866	3,028,700	4,924,349	6,641,572	7,905,661
Nebraska	7,395,368	7,417,837	9,010,945	11,615,257	13,499,515
Kansas	15,843,345	11,966,843	15,266,241	16,919,248	21,584,965
South Atlantic:					
Delaware	900,212	628,866	785,591	948,656	1,365,032
Maryland	3,430,859	2,113,544	2,650,750	3,436,376	4,198,305
District of Columbia	10,543	8,004	7,405	10,370	16,492
Virginia	6,576,260	4,590,311	5,684,703	7,860,488	.....
West Virginia	3,197,447	2,759,585	3,106,907	4,027,510	4,349,406
North Carolina	7,507,593	3,871,858	4,566,428	7,393,161	.....
South Carolina	3,873,798	2,664,784	2,694,970	3,954,365	4,238,254
Georgia	7,357,934	4,549,144	4,890,069	7,221,788	.....
Florida	919,601	1,107,816	1,239,680	1,554,896	2,130,297
East South Central:					
Kentucky	12,740,559	6,849,079	8,000,457	10,477,598	.....
Tennessee	12,062,139	6,184,210	7,341,469	11,353,647	.....
Alabama	6,252,044	4,737,606	4,589,660	5,918,429	6,281,690
Mississippi	5,631,784	5,194,856	4,563,464	6,342,204	.....
West South Central:					
Arkansas	6,264,427	5,393,157	5,182,670	6,955,132	.....
Louisiana	2,246,907	3,890,563	3,259,087	3,763,910	.....
Oklahoma	388,427	4,487,858	8,014,938	11,137,259	13,023,482
Texas	11,523,717	13,562,302	12,719,572	18,062,744	.....
Mountain:					
Montana	233,660	531,774	922,540	2,055,120	2,544,698
Idaho	231,547	516,412	1,012,431	1,654,771	2,028,805
Colorado	710,942	968,761	1,644,471	2,874,721	3,751,618
Wyoming	73,694	142,136	324,984	620,734	808,994
New Mexico	60,596	156,853	509,890	713,937	.....
Arizona	57,224	165,200	252,657	495,065	635,877
Utah	279,983	534,842	673,662	954,695	1,366,873
Nevada	62,167	100,661	126,599	155,197	225,300
Pacific:					
Washington	779,972	1,196,639	2,204,114	3,547,604	5,393,262
Oregon	1,180,765	1,290,818	1,753,224	2,500,123	.....
California	3,504,251	3,947,200	5,665,964	10,426,648	12,784,512

* Preliminary announcement, subject to correction.

Figures for 1890 and 1900 relate to June 1; for 1910 to April 15 and for 1920 and 1925 to January 1.

Sources of data: Years 1890, 1900, 1910, and 1920 from Dept. of Commerce, Bureau Census, Fourteenth Census, U. S. **5**: 610, 1922. Year 1925 from preliminary data furnished author by Census Bureau. Remaining data for January 1, 1925, is being compiled by Census Bureau.

TABLE 106

CHICKEN EGGS PRODUCED—NUMBER BY DIVISIONS AND STATES, 1909, 1919, 1924
Per chicken, 1924 (Dozens)

Division and State	Total 1909	Total 1919	1924*	Per chicken 1924*
UNITED STATES	1,574,979,416	1,654,044,932		
Geographic Divisions:				
New England	54,688,994	37,631,896	56,539,947	6.95
Middle Atlantic	159,465,468	151,453,438	216,632,168	6.22
East North Central	389,256,925	400,445,456	441,678,127	4.93
West North Central	442,167,894	474,591,975		
South Atlantic	134,289,761	144,662,300		
East South Central	127,308,625	138,152,110		
West South Central	163,644,118	157,008,422		
Mountain	35,233,191	49,993,154		
Pacific	68,944,440	100,106,181		
New England:				
Maine	14,876,215	9,977,349	13,612,813	7.16
New Hampshire	7,469,472	5,005,302	8,181,291	6.78
Vermont	7,001,897	5,166,689	6,371,751	6.77
Massachusetts	13,961,352	9,604,274	14,324,666	7.06
Rhode Island	2,862,246	1,536,858	2,274,701	6.29
Connecticut	8,497,812	6,341,424	11,774,725	6.93
Middle Atlantic:				
New York	71,191,449	62,175,162	87,167,262	6.50
New Jersey	14,590,530	13,280,104	27,417,182	6.66
Pennsylvania	73,683,489	75,998,172	102,047,724	5.90
East North Central:				
Ohio	100,284,261	102,377,143	112,893,410	5.39
Indiana	80,028,638	83,101,293	86,974,603	5.01
Illinois	99,118,224	105,757,907	113,020,993	4.39
Michigan	59,556,356	55,986,999	68,208,777	5.42
Wisconsin	50,269,446	53,222,114	60,580,344	4.64
West North Central:				
Minnesota	53,323,702	60,249,543	76,321,570	4.65
Iowa	108,662,882	120,697,319	133,776,386	4.42
Missouri	110,922,159	117,203,569		
North Dakota	17,069,496	20,820,407	20,987,697	4.05
South Dakota	24,641,342	30,351,984	35,103,838	4.44
Nebraska	46,460,624	49,132,537	54,811,233	4.06
Kansas	81,087,689	76,136,616	93,144,604	4.31
South Atlantic:				
Delaware	4,395,100	3,908,463	6,380,888	4.67
Maryland	15,238,591	15,085,691	20,068,986	4.93
District of Columbia	51,062	42,932	68,788	4.17
Virginia	34,539,082	36,551,269		
West Virginia	18,948,259	21,708,279	22,124,842	5.09
North Carolina	23,179,226	24,841,021		
South Carolina	10,983,171	12,812,143	11,109,184	2.62
Georgia	20,606,219	23,181,939		
Florida	6,349,051	6,530,563	9,576,984	4.50
East South Central:				
Kentucky	43,781,616	42,224,720		
Tennessee	41,244,285	48,707,146		
Alabama	21,945,662	23,436,979	19,462,863	3.10
Mississippi	20,337,062	23,783,265		

TABLE 106—(*Continued*)

Division and State	1909	Total 1919	1924*	Per chicken 1924*
West South Central:				
Arkansas	26,486,526	28,168,285		
Louisiana	14,423,023	13,136,046		
Oklahoma	45,356,592	45,440,017	51,477,222	3.95
Texas	77,377,977	70,264,074		
Mountain:				
Montana	5,950,015	11,858,042	13,403,326	5.27
Idaho	6,433,840	8,604,809	11,707,941	5.77
Wyoming	2,070,799	3,165,743	4,336,912	4.81
Colorado	10,577,829	14,172,375	18,061,043	5.36
New Mexico	2,961,352	3,062,790		
Arizona	1,731,872	2,524,832	3,740,638	5.88
Utah	4,644,829	5,709,076	9,016,514	6.60
Nevada	862,655	895,487	1,436,468	6.38
Pacific:				
Washington	16,373,740	21,356,576	42,058,319	7.80
Oregon	11,835,462	14,625,720		
California	40,735,238	64,123,835	97,997,325	7 66

* Preliminary announcement, subject to correction.

Figures for 1890 and 1900 relate to June 1; for 1910 to April 15 and for 1920 and 1925 to January 1.

Sources of data: Years 1890, 1900, 1910, and 1920 from Dept. of Commerce, Bureau Census, Fourteenth Census, U. S. **5**: 680, 1922. Year 1925 from preliminary data furnished author by Census Bureau. Remaining data for January 1, 1925, is being compiled by Census Bureau.

TABLE 107

*Chickens Raised—Number by Divisions and States, 1909, 1919, 1924

	1909	1919	1924
United States	460,611,201	473,301,959	
Geographic Divisions:			
New England	10,756,947	8,477,360	13,539,820
Middle Atlantic	34,070,656	31,059,165	
East North Central	98,895,698	99,251,552	
West North Central	118,998,060	126,762,874	
South Atlantic	65,058,950	65,374,047	
East South Central	55,683,712	51,071,455	
West South Central	54,701,253	57,328,795	
Mountain	8,431,522	13,037,295	
Pacific	14,014,403	20,939,416	
New England:			
Maine	2,554,902	1,908,466	2,837,654
New Hampshire	1,362,577	1,172,274	2,441,812
Vermont	1,246,613	1,015,742	1,339,275
Massachusetts	3,054,934	2,401,068	3,731,769
Rhode Island	569,809	433,668	519,211
Connecticut	1,968,112	1,546,142	2,670,099
Middle Atlantic:			
New York	13,393,599	11,872,644	
New Jersey	4,328,628	3,522,776	5,491,704
Pennsylvania	16,348,429	15,663,745	
East North Central:			
Ohio	22,776,881	22,458,227	
Indiana	22,098,966	22,618,296	
Illinois	31,058,772	29,893,565	32,203,811
Michigan	12,529,844	12,441,555	15,275,548
Wisconsin	10,431,235	11,839,909	14,204,678

TABLE 107—(*Continued*)

	1909	1919	1924
West North Central:			
Minnesota	11,412,001	15,062,386	20,352,255
Iowa	28,970,482	31,076,091	38,184,909
Missouri	30,413,289	29,363,102	
North Dakota	3,829,177	5,324,137	5,721,854
South Dakota	5,802,869	7,637,808	10,607,376
Nebraska	14,724,281	15,796,750	20,310,433
Kansas	23,845,961	22,502,600	29,064,067
South Atlantic:			
Delaware	1,401,446	1,204,793	1,582,186
Maryland	5,419,957	5,257,655	6,025,180
District of Columbia	13,850	14,103	10,192
Virginia	15,182,753	14,227,483	
West Virginia	5,204,967	4,873,287	5,304,124
North Carolina	13,765,827	14,047,006	
South Carolina	8,062,383	9,015,952	7,829,998
Georgia	13,706,397	14,588,012	
Florida	2,301,370	2,145,756	2,766,369
East South Central:			
Kentucky	17,572,773	15,506,845	
Tennessee	15,865,254	15,554,496	
Alabama	11,382,815	10,179,698	9,527,321
Mississippi	10,862,870	9,830,416	
West South Central:			
Arkansas	9,673,838	9,111,223	
Louisiana	5,830,049	5,570,587	
Oklahoma	15,336,955	16,817,261	19,670,036
Texas	23,860,411	25,829,724	
Mountain:			
Montana	1,366,835	3,226,538	
Idaho	1,588,794	2,250,489	2,539,708
Wyoming	494,768	893,857	1,121,118
Colorado	2,585,132	3,880,873	
New Mexico	893,831	920,979	
Arizona	374,241	569,325	
Utah	946,647	1,107,446	1,644,266
Nevada	181,274	187,788	280,451
Pacific:			
Washington	3,610,589	4,860,217	7,051,472
Oregon	2,554,583	3,150,155	
California	7,849,231	12,929,044	14,382,861

* The figures represent chickens raised to a marketable size. They do not include baby chicks. Figures for 1890 and 1900 relate to June 1; for 1910 to April 15 and for 1920 and 1925 to January 1.

Sources of data: Years 1890, 1900, 1910 and 1920 from Dept. of Commerce, Bureau Census, Fourteenth Census, U. S. **5**: 682, 1922. Year 1925 from preliminary data furnished author by Census Bureau. Remaining data for January 1, 1925, is being compiled by Census Bureau.

TABLE 108

Chickens on Hand, California, January 1, 1920, 1925, and Value January 1, 1925

	1920 Number	1925 Number	1925 Value
State total	10,426,648	12,784,512	$12,557,940
Alameda	307,092	516,646	495,980
Alpine	767	919	1,048
Amador	22,443	21,341	24,329
Butte	109,815	113,130	113,130
Calaveras	23,061	22,272	25,390
Colusa	59,340	58,069	58,069
Contra Costa	127,436	158,461	152,123
Del Norte	4,662	8,626	9,057
Eldorado	26,526	32,053	36,540
Fresno	307,727	313,788	301,236
Glenn	123,297	105,952	105,952
Humboldt	69,122	103,005	108,155
Imperial	264,123	190,656	192,563
Inyo	20,946	22,870	26,072
Kern	125,180	160,017	153,616
Kings	131,184	112,175	107,688
Lake	29,506	31,011	29,771
Lassen	25,521	24,280	17,482
Los Angeles	1,307,976	1,788,369	1,806,253
Madera	58,463	79,530	76,349
Marin	195,712	288,807	277,253
Mariposa	10,362	9,920	11,309
Mendocino	83,144	112,545	118,172
Merced	166,959	185,996	178,556
Modoc	22,555	20,604	14,835
Mono	2,282	8,656	9,868
Monterey	101,514	157,579	151,276
Napa	123,535	179,244	172,074
Nevada	24,570	24,631	28,079
Orange	184,401	224,796	227,044
Placer	72,667	90,953	103,686
Plumas	6,291	6,928	4,988
Riverside	219,791	402,139	406,160
Sacramento	240,632	449,058	449,058
San Benito	64,878	56,673	54,406
San Bernardino	191,949	317,211	320,383
San Diego	392,359	640,260	646,663
San Francisco	3,191	.....	.....
San Joaquin	290,239	327,469	314,370
San Luis Obispo	85,459	136,947	131,469
San Mateo	57,258	30,883	29,648
Santa Barbara	67,838	75,865	76,624
Santa Clara	219,729	220,047	211,245
Santa Cruz	222,306	387,048	371,566
Shasta	39,406	44,954	42,257
Sierra	2,776	2,565	2,924
Siskiyou	37,423	39,449	37,082
Solano	94,273	94,049	94,049
Sonoma	2,986,883	3,244,125	3,114,360
Stanislaus	330,488	348,839	334,885
Sutter	82,672	80,690	80,690
Tehama	82,001	89,780	89,780
Trinity	9,048	6,834	6,424
Tulare	373,999	359,873	345,478
Tuolumne	18,020	25,268	28,806
Ventura	60,770	101,118	102,129
Yolo	88,446	96,584	96,584
Yuba	26,635	32,955	32,955

Source of data: Year 1920, Dept. of Commerce, Bureau Census, Fourteenth Census, U. S. **6**: pt. 3, pp. 350–355. 1925 figures furnished to author by Census Bureau.

TABLE 109

Chickens Raised, California 1919, 1924; Value, 1924

	1919* Number	1919† Number	1924† Number	1924 Value
State total	9,267,144	12,929,044	14,382,861	$12,808,329
Alameda	284,902	387,300	665,957	559,404
Alpine	373	544	1,139	1,173
Amador	17,602	22,617	15,878	16,354
Butte	99,988	131,877	129,194	111,107
Calaveras	24,137	31,334	24,299	25,028
Colusa	46,244	64,241	64,224	55,233
Contra Costa	84,287	125,539	174,941	146,950
Del Norte	3,178	4,503	8,686	8,686
Eldorado	24,707	35,706	41,861	43,117
Fresno	273,308	418,778	390,352	339,606
Glenn	100,141	139,975	139,009	119,548
Humboldt	44,224	68,850	135,246	135,246
Imperial	154,179	244,399	205,527	199,361
Inyo	7,250	23,592	29,431	30,314
Kern	93,049	147,208	202,582	176,246
Kings	124,502	160,265	144,257	125,504
Lake	27,711	34,843	40,376	33,916
Lassen	27,793	35,060	34,016	24,151
Los Angeles	1,245,012	1,571,943	2,028,010	1,967,170
Madera	44,033	76,243	101,719	88,496
Marin	145,689	174,308	334,150	280,686
Mariposa	8,874	12,168	12,152	12,517
Mendocino	76,305	98,923	141,357	141,357
Merced	112,965	189,350	202,178	175,895
Modoc	26,941	31,793	27,795	19,734
Mono	2,301	3,336	7,055	7,267
Monterey	65,618	101,107	182,634	153,413
Napa	121,547	171,538	181,753	152,673
Nevada	26,583	29,353	24,311	25,040
Orange	114,890	201,816	260,089	252,286
Placer	91,645	112,286	111,599	114,947
Plumas	5,949	9,952	9,588	6,807
Riverside	201,133	289,253	421,040	408,409
Sacramento	348,280	502,087	597,696	514,019
San Benito	28,826	56,818	60,243	50,604
San Bernardino	222,549	278,767	326,410	316,618
San Diego	376,187	477,055	747,183	724,768
San Francisco	8,036	10,264	.....	.....
San Joaquin	342,860	501,435	403,442	350,995
San Luis Obispo	62,794	96,587	147,081	123,548
San Mateo	46,949	67,842	37,245	31,286
Santa Barbara	56,012	82,001	75,637	73,368
Santa Clara	314,123	520,514	484,543	407,016
Santa Cruz	218,606	297,424	408,723	343,327
Shasta	33,375	46,968	80,153	66,527
Sierra	2,476	2,826	2,093	2,156
Siskiyou	33,232	42,412	37,240	30,909
Solano	70,096	107,952	100,068	86,058
Sonoma	2,512,179	3,461,706	3,111,116	2,613,337
Stanislaus	246,442	371,251	372,560	324,127
Sutter	67,293	85,634	86,580	74,459
Tehama	97,430	118,437	138,351	118,982
Trinity	7,662	10,019	6,718	5,576
Tulare	305,267	432,361	401,618	349,408
Tuolumne	14,738	20,675	29,513	30,398
Ventura	40,477	62,638	91,208	88,472
Yolo	67,976	100,317	106,049	91,202
Yuba	15,949	24,514	38,986	33,528

Source of data: Year 1919, Dept. of Commerce, Bureau Census, Fourteenth Census, U. S. **6**: pt, 3. pp. 350–355. 1925 figures furnished to author by Census Bureau.

* Number actually reported.

† Includes estimates. For purposes of comparison these columns should be used.

TABLE 110

Chicken Eggs Produced, California, 1919, 1924; Value, 1924

	1919* Dozen	1919† Dozen	1924† Dozen	1924 Value
State total	57,659,313	64,123,885	97,907,325	$31,615,277
Alameda	2,392,395	2,480,104	4,310,378	1,379,321
Alpine	6,302	8,502	7,041	2,394
Amador	92,148	106,567	109,138	37,107
Butte	523,764	566,789	796,548	238,964
Calaveras	77,766	83,833	127,374	43,307
Colusa	188,591	224,225	449,802	134,941
Contra Costa	808,819	833,614	1,312,691	420,061
Del Norte	16,050	16,546	81,352	26,033
Eldorado	126,853	134,488	226,839	77,125
Fresno	1,388,220	1,579,412	1,835,974	569,152
Glenn	450,997	516,599	626.176	187,853
Humboldt	377,844	404,883	961,861	307,796
Imperial	766,949	957,793	876,636	298,056
Inyo	95,514	142,625	142,039	48,293
Kern	442,244	597,799	872,093	270,349
Kings	753,058	800,472	764,473	236,987
Lake	100,514	111,119	200,641	64,205
Lassen	121,565	124,682	122,930	40,567
Los Angeles	7,793,395	8,190,959	13,825,881	4,700,800
Madera	173,330	207,707	446,959	138,557
Marin	1,093,172	1,271,099	2,660,256	851,282
Mariposa	50,591	53,718	48,975	16,652
Mendocino	421,224	438,386	859,956	275,186
Merced	753,476	894,091	1,282,070	397,442
Modoc	123,518	127,175	119,029	39,280
Mono	9,281	10,647	69,713	23,702
Monterey	563,257	622,332	1,304,597	417,471
Napa	643,335	705,003	1,142,501	365,600
Nevada	144,310	146,912	160,668	54,627
Orange	967,747	1,233,742	1,749,587	594,860
Placer	370,572	389,880	707,796	240,651
Plumas	27,176	31,900	35,894	11,845
Riverside	1,120,579	1,237,544	2,660,149	904,451
Sacramento	1,218,376	1,285,391	4,787,856	1,436,357
San Benito	367,415	426,031	456,218	145,990
San Bernardino	943,471	1,043,234	2,045,377	695,428
San Diego	2,305,717	2,498,363	5,503,675	1,871,250
San Francisco	19,829	20,352	.....	.....
San Joaquin	1,183,000	2,837,234	2,238,251	693,858
San Luis Obispo	390,871	429,439	782,378	250,361
San Mateo	263,097	281,232	195,984	62,715
Santa Barbara	299,619	376,099	486,674	165,469
Santa Clara	1,109,532	1,252,590	1,528,667	489,173
Santa Cruz	1,523,711	1,733,236	3,654,120	1,169,318
Shasta	205,340	235,986	303,035	96,971
Sierra	15,603	15,746	11,707	3,980
Siskiyou	182,899	193,296	204,504	65,441
Solano	368,548	399,905	602,572	180,772
Sonoma‡	19,684,744	20,480,588	26,313,098	8,420,191
Stanislaus	1,388,135	1,618,699	3,055,830	947,307
Sutter	362,042	394,394	535,378	160,613
Tehama	382,580	418,621	558,970	167,691
Trinity	43,514	50,532	36,869	11,798
Tulare	1,442,416	1,756,199	2,170,034	672,711
Tuolumne	72,209	77,375	148,348	50,438
Ventura	275,230	299,597	639,976	217,592
Yolo	520,829	571,525	569,556	170,867
Yuba	106,030	127,080	180,231	54,069

* Number actually reported.

† Includes estimates. For purposes of comparison these columns should be used.

‡ The number of eggs reported as produced does not equal the number of eggs shipped from Petaluma, see Table 33. The author believes the Census figures are perhaps a little low. The above table, however, is useful for purposes of comparison.

Sources of data: Year 1920, Dept. of Commerce, Bureau Census, Fourteenth Census, U. S. 6: pt. 3, pp. 350-355. 1925 figures furnished to author by Census Bureau.

TABLE 111

NET WHOLESALE QUOTATIONS, FRESH EXTRAS, LOS ANGELES, 1910–1926
(Cents per dozen)

Month	1910	1911	1912	1913	1914	1915	1916	1917
January	37.8	36.3	33.8	34.6	43.2	34.2	36.0	37.7
February	27.3	31.0	26.8	26.1	31.8	27.9	29.0	29.7
March	25.0	23.2	24.6	22.6	23.2	22.3	22.2	27.1
April	26.0	23.1	24.0	21.3	25.1	23.9	24.5	32.5
May	26.9	23.5	20.8	22.1	25.8	25.0	25.6	32.9
June	27.6	25.2	26.0	24.5	27.5	23.8	27.3	33.1
July	32.3	29.0	28.8	26.6	29.8	27.5	28.0	35.6
August	35.8	34.2	31.5	32.5	35.0	32.0	33.4	41.3
September	42.5	37.8	38.8	37.3	37.7	36.0	39.0	47.2
October	45.8	45.3	43.6	44.1	48.8	43.7	48.0	54.8
November	49.8	47.4	50.0	50.0	47.2	47.8	50.8	56.0
December	40.8	42.5	39.2	43.6	46.6	40.4	41.8	52.5
Average	34.8	33.2	32.3	32.1	35.1	32.0	33.8	40.0

Month	1918	1919	1920	1921	1922	1923	1924	1925	1926
January	53.5	56.3	56.5	59.3	42.0	41.1	40.0	53.3	32.4
February	41.3	38.5	44.3	36.5	28.0	28.0	27.5	34.8	28.4
March	38.0	40.0	39.2	31.2	26.1	26.8	25.9	31.4	27.5
April	38.0	45.6	40.3	27.3	27.0	29.3	27.2	31.1	29.3
May	38.4	48.8	43.8	25.5	26.8	30.3	27.8	33.1	30.2
June	38.6	48.3	45.0	29.0	28.8	30.6	33.1	36.0	32.6
July	45.3	51.8	51.3	34.8	30.5	30.6	34.4	39.9	34.2
August	51.2	54.4	56.3	40.9	32.6	37.6	37.8	43.2	39.2
September	57.3	60.0	66.3	47.5	42.8	48.0	45.3	46.7	44.3
October	68.2	71.2	76.5	61.8	57.2	56.8	54.8	53.6	50.8
November	74.5	75.8	80.6	62.8	60.3	56.3	56.0	52.3	.....
December	71.8	68.8	73.0	55.3	55.8	49.0	48.8	45.1	.....
Average	51.3	55.0	56.1	42.7	38.2	38.7	38.2	41.7	.....

Source of data: Monthly figures are based on arithmetic average of Wednesday quotations appearing in California Cultivator. Computations involving use of wholesale prices are based upon the above table, except where otherwise noted. All quotations are net.

TABLE 112

Net Wholesale Quotations, Fresh Extras, San Francisco, 1910–1926

(Cents per dozen)

Month	1910	1911	1912	1913	1914	1915	1916	1917
January	32.5	31.6	34.0	28.4	41.5	29.3	32.3	37.5
February	26.9	25.8	24.2	19.3	26.3	22.3	25.6	33.5
March	21.6	18.7	20.3	18.0	20.6	20.8	20.2	26.2
April	24.5	19.5	21.1	19.4	22.1	21.9	21.8	32.1
May	25.3	21.4	29.9	21.5	22.9	23.1	22.8	33.3
June	27.0	21.7	21.5	24.5	24.4	22.6	24.8	31.1
July	29.8	25.9	25.0	26.8	27.4	25.2	27.3	34.5
August	35.1	31.1	28.4	32.0	33.5	31.0	33.0	42.7
September	40.6	38.3	37.3	38.9	39.9	36.2	39.0	46.5
October	46.6	45.6	44.3	48.7	47.0	46.3	46.8	52.6
November	54.5	49.6	47.8	55.6	47.8	51.8	48.6	56.3
December	41.1	39.5	34.1	44.3	45.7	39.7	38.6	52.0
Average	33.8	30.7	29.9	31.5	33.3	30.9	31.7	39.9

Month	1918	1919	1920	1921	1922	1923	1924	1925	1926
January	57.7	56.6	57.7	55.1	35.3	37.2	36.4	46.8	33.6
February	38.6	37.6	45.0	34.1	27.4	27.7	26.6	28.6	26.0
March	36.6	38.5	39.1	30.1	23.5	24.7	22.8	30.1	26.6
April	36.4	43.8	41.2	25.6	25.2	27.2	24.6	29.5	27.5
May	36.7	47.2	41.9	23.1	24.8	28.3	25.1	31.7	28.1
June	39.0	46.5	43.1	26.8	25.8	27.8	30.0	34.9	30.9
July	43.7	49.5	51.8	37.3	26.4	28.7	32.4	38.4	33.5
August	50.2	53.4	55.5	41.0	30.0	37.6	35.7	40.9	38.1
September	57.4	62.5	67.2	47.5	44.5	46.6	45.9	45.6	43.6
October	70.0	72.5	76.9	59.0	58.4	55.8	51.9	53.9	50.2
November	75.6	78.7	80.0	59.7	56.4	51.2	51.9	53.1	.....
December	81.4	71.6	69.2	50.6	48.5	44.3	47.4	43.9	.....
Average	51.9	54.9	55.7	40.8	35.5	36.4	35.9	39.8	.....

Source of data: Monthly net wholesale quotations, computed by obtaining arithmetic mean of Wednesday quotations appearing in the Pacific Rural Press. Only net quotations were used, the discounts from January 1, 1918 to December 31, 1925 being deducted. All computations based on wholesale prices at San Francisco are based upon the above table except where otherwise noted.

TABLE 113

Net Wholesale Quotations of Pullet Eggs, Los Angeles, 1917–1925

Month	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926
January	34.2	50.7	53.3	51.0	56.0	38.8	37.8	36.2	51.3	28.1
February	27.1	39.8	36.7	41.5	34.5	24.9	25.0	25.1	33.0	25.7
March	25.3	35.7	36.5	34.8	28.0	22.5	24.0	22.5	27.8	22.6
April	28.5	36.0	43.4	36.8	24.0	24.3	25.1	24.5	27.6	25.8
May	29.4	36.1	47.0	39.3	20.6	22.2	26.1	22.8	30.1	25.7
June	30.6	35.1	44.3	39.0	26.1	25.4	26.8	28.3	32.0	27.5
July	32.5	42.6	45.4	45.3	29.3	30.8	26.5	29.6	33.1	27.7
August	37.0	46.5	50.3	48.2	35.2	25.9	32.4	33.5	34.6	29.3
September	38.6	50.0	49.5	57.0	36.3	31.8	36.8	35.5	36.5	34.7
October	43.8	56.8	59.2	63.3	44.0	41.2	42.4	42.4	39.3	39.0
November	49.8	64.3	62.3	70.4	48.8	46.3	43.8	44.0	42.7	.....
December	47.5	66.2	59.4	67.5	50.3	47.5	43.8	44.2	38.2	.....
Average	35.4	46.7	48.9	49.5	36.1	31.8	32.5	32.4	35.5	.....

Source of data: Monthly quotations computed by author by using arithmetic mean of the weekly wholesale quotations in the California Cultivator. All quotations are on a net basis.

TABLE 114

Wholesale Quotations of Pullet Eggs, San Francisco, 1911–1925

Month	1911	1912	1913	1914	1915	1916	1917	1918
January	.....	31.3	26.4	39.1	29.4	30.9	35.2	53.5
February	.....	21.0	18.5	24.8	20.9	24.9	27.8	38.8
March	.....	19.0	16.1	18.5	18.1	17.6	25.1	34.9
April	.....	18.6	17.1	19.6	18.6	19.3	28.9	35.2
May	18.6	17.7	18.0	21.0	20.3	20.3	30.1	35.0
June	18.3	17.1	22.3	21.9	19.8	22.4	29.3	35.9
July	20.9	21.8	23.1	23.4	22.8	24.8	31.8	41.1
August	24.7	23.8	26.1	27.5	25.9	28.7	39.0	47.0
September	27.8	30.8	31.8	33.1	31.7	33.1	43.6	52.8
October	35.9	32.5	39.8	37.6	38.3	41.3	44.8	61.3
November	42.6	39.8	48.8	38.1	43.3	39.6	52.0	62.3
December	33.6	28.5	43.1	36.4	34.2	34.3	45.9	72.7
Average	.....	25.2	27.6	28.4	26.9	28.1	36.1	47.5

Month	1919	1920	1921	1922	1923	1924	1925	1926
January	53.6	49.9	50.9	31.5	34.1	30.2	44.4	31.6
February	34.4	40.0	30.5	24.6	24.7	23.3	25.4	23.4
March	36.7	34.5	27.4	20.7	21.5	21.0	27.6	22.7
April	41.5	36.5	22.8	22.4	24.4	21.3	26.2	23.1
May	44.6	36.5	19.2	21.8	24.4	20.6	28.7	23.5
June	41.3	35.4	23.1	22.4	25.0	26.1	31.7	25.0
July	43.5	44.1	29.0	22.1	24.4	28.2	32.7	27.0
August	49.5	46.7	33.4	24.0	30.6	31.7	34.2	30.5
September	53.1	59.0	35.6	32.5	34.7	36.9	36.6	35.0
October	58.1	61.8	43.2	42.2	40.5	40.8	42.4	38.3
November	61.2	68.8	47.8	44.5	39.5	42.8	41.2	.....
December	63.5	61.5	43.6	43.5	38.6	42.1	38.3	.....
Average	48.4	47.9	33.9	29.4	30.2	30.4	30.8	.....

Source of data: Monthly quotations computed by author by using arithmetic mean of the weekly wholesale quotations in the Pacific Rural Press. All quotations since Jan. 1, 1918, were first reduced to a net basis.

TABLE 115

PRODUCTION OF EGGS ON FARMS, 1925

A record of egg production, based upon returns made the first day of each month from about 22,000 farms, giving number of hens, including pullets, of laying age in the reporter's flock and the number of eggs laid by his flock on the preceding day.

State and Division	U. S. Census Comparisons							Results of Inquiry[1]										
								Percentage of relative layings in different months. (Reported daily layings at first of each month, in per cent of the total 12 layings reported.)										
	Number of farms reporting "chickens on hand" in 1920	Number of "chickens per farm" in 1920	Number of eggs laid—		Average number of "hens including pullets of laying age" on farms answering inquiry Jan. 1, 1925	Approximate number of eggs laid during 12 months on farms reporting in 1925		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
			During 1919 per farm	Per "chicken on hand" Jan. 1, 1920		Per farm reporting	Per hen on hand Jan. 1, 1925											
								Per cent	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*
Maine	38	36	3,113	85	76.7	9,750	137	4.5	7.0	11.6	10.6	11.2	12.0	10.1	8.8	7.1	7.0	4.7	5.4
New Hampshire	16	47	3,672	78	115.7	[1]21759	188	3.8	7.5	12.5	11.2	12.1	7.5	5.8	6.2	5.3	11.1	8.1	8.9
Vermont	24	33	2,535	78	61.9	8,560	145	3.5	5.0	9.6	13.3	12.2	13.5	10.2	8.8	9.5	5.8	3.6	5.0
Massachusetts	25	57	4,532	79	132.0	16,600	125	5.5	9.0	8.3	10.3	14.0	11.1	9.6	8.0	6.3	6.8	7.4	3.7
Rhode Island	3	72	5,227	73	146.2	14,805	101	6.0	7.0	17.4	17.2	12.9	9.2	9.0	5.6	4.4	3.4	2.6	5.3
Connecticut	20	57	3,871	68	104.4	14,699	141	5.2	6.6	8.3	13.8	10.5	10.0	10.4	10.2	8.5	6.0	4.1	6.4
New York	174	60	4,287	72	102.4	13,513	128	3.5	5.5	9.6	13.2	14.9	13.6	10.1	9.3	7.8	5.6	2.8	4.1
New Jersey	27	94	5,908	62	150.7	20,950	134	4.8	4.2	11.9	14.5	11.3	11.1	10.7	10.4	7.9	5.0	3.2	5.0
Pennsylvania	189	77	4,835	62	113.1	13,774	117	3.9	5.3	10.5	14.7	13.9	11.5	10.6	9.3	7.6	5.7	3.5	3.5
North Atlantic	516	64	4,384	68	107.4	94,042	128.1	4.0	5.7	10.3	13.5	13.6	12.0	10.1	9.1	7.6	6.0	3.8	4.3
Delaware	10	97	4,813	49	210.4	[1]24,345	116	5.3	8.8	9.0	12.9	12.4	13.2	6.6	7.8	9.9	5.3	5.0	3.8
Maryland	46	75	3,973	53	129.6	12,968	98	4.5	4.8	11.7	15.4	13.6	12.2	9.5	8.5	6.7	5.4	4.0	3.7
Virginia	175	45	2,504	55	90.7	9,217	99	5.5	6.3	11.6	12.6	12.4	11.1	10.0	9.6	6.8	5.7	4.0	4.4
West Virginia	82	49	3,162	65	75.6	9,372	120	3.8	5.6	10.7	15.1	15.5	13.0	9.0	8.3	6.5	5.7	3.5	3.3
North Carolina	247	30	1,207	41	54.2	6,486	117	6.7	7.8	11.8	11.6	11.6	9.2	9.8	7.8	6.6	6.4	5.6	5.1
South Carolina	170	23	907	38	46.7	5,150	107	6.2	6.0	11.1	14.5	13.9	10.2	9.1	8.6	6.5	5.7	4.8	3.4
Georgia	278	26	1,001	38	50.6	5,722	112	5.5	6.8	12.3	13.6	12.2	9.8	10.8	7.8	5.9	5.8	5.7	3.8
Florida	45	35	1,741	50	46.5	8,350	151	5.7	10.5	13.0	11.7	9.8	9.2	8.2	7.3	6.5	4.5	6.4	7.2
South Atlantic	1,053	35	1,649	48	70.0	8,036	110.9	5.6	6.8	11.6	13.2	12.6	10.6	9.7	8.3	6.6	5.8	4.9	4.3

[1] Irregular and doubtful figures, in some States of minor importance in poultry production, are due to too few reports to give stable averages.

Source of data: U. S. D. A., Bureau of Agricultural Economics, Monthly Supplement Crops and Markets **3**: p. 83. March, 1926.

TABLE 115—(*Continued*)

State and Division	U. S. Census Comparisons							Results of Inquiry[1]										
	Number of farms reporting "chickens on hand" in 1920	Number of "chickens per farm" in 1920	Number of eggs laid— During 1919 per farm	Number of eggs laid— Per "chicken on hand" Jan. 1, 1920	Average number of "hens including pullets of laying age" on farms answering inquiry Jan. 1, 1925	Approximate number of eggs laid during 12 months on farms reporting in 1925 — Per farm reporting	Approximate number of eggs laid during 12 months on farms reporting in 1925 — Per hen on hand Jan. 1, 1925	Percentage of relative layings in different months. (Reported daily layings at first of each month, in per cent of the total 12 layings reported.) — Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
								Per cent	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*
Ohio	241	84	5,085	61	111.8	12,789	114	2.9	5.0	10.3	14.8	14.1	12.9	10.4	8.7	7.9	6.5	3.3	3.2
Indiana	194	86	5,134	60	126.6	12,843	106	2.8	5.0	10.9	16.1	14.9	12.1	10.0	8.6	7.4	6.0	3.3	2.9
Illinois	227	111	5,597	50	116.1	12,211	99	2.3	4.6	10.0	15.6	15.7	12.9	10.6	9.0	7.5	5.9	3.4	2.5
Michigan	181	60	3,719	61	85.8	9,458	110	2.9	5.0	8.3	14.1	15.4	13.2	10.8	9.2	8.0	6.2	3.6	3.3
Wisconsin	178	65	3,595	55	81.9	9,430	115	2.8	5.2	8.2	14.1	15.9	13.1	10.3	9.3	8.1	6.4	3.4	3.2
East North Central	1,021	83	4,707	56	103.1	11,337	107.4	2.7	4.9	9 8	15.0	15.1	12.8	10.4	8.9	7.8	6.2	3.4	3.0
Minnesota	164	81	4,413	55	97.3	10,753	111	2.3	4.5	7.9	14.5	17.5	13.4	10.8	9.4	7.9	6.1	2.8	2.9
Iowa	203	137	7,132	52	148.0	14,100	94	2.0	3.9	9.0	15.6	16.2	13.4	11.3	8.9	8.2	5.9	3.1	2.5
Missouri	248	100	5,658	56	140.2	14,048	99	2.5	5.7	11.8	16.3	14.8	12.5	9.3	7.6	7.0	5.8	3.8	2.9
North Dakota	70	62	3,584	58	74.1	7,794	108	2.0	3.3	7.8	12.1	15.6	14.0	11.8	10.2	10.3	7.3	3.2	2.4
South Dakota	68	98	5,381	55	98.0	10,468	103	1.8	3.6	9.6	15.6	16.2	13.0	11.0	8.8	8.3	6.3	3.3	2.5
Nebraska	116	100	5,079	50	109.7	10,830	96	2.0	3.8	11.7	15.6	15.4	12.7	10.8	8.6	7.5	5.9	3.1	2.9
Kansas	155	109	5,905	54	141.5	14,875	102	2.1	5.0	12.6	15.2	15.2	12.6	10.2	8.8	7.0	5.2	3.1	2.9
West North Central	1,024	103	5,563	54	125.2	12,758	105.6	2.2	4.6	10.5	15.4	15.7	12.9	10.4	8.6	7.7	5.9	3.3	2.8

[1] Irregular and doubtful figures, in some States of minor importance in poultry production, are due to too few reports to give stable averages.
Source of data: U. S. D. A., B. A. E. Monthly Supplement Crops and Markets **3**: p. 83. March, 1926.

TABLE 115—(*Concluded*)

State and Division	U. S. Census Comparisons							Results of Inquiry[1]										
	Number of farms reporting "chickens on hand" in 1920	Number of "chickens per farm" in 1920	Number of eggs laid—		Average number of "hens including pullets of laying age" on farms answering inquiry Jan. 1, 1925	Approximate number of eggs laid during 12 months on farms reporting in 1925		Percentage of relative layings in different months. (Reported daily layings at first of each month, in per cent of the total 12 layings reported.)										
			During 1919 per farm	Per "chicken on hand" Jan. 1, 1920		Per farm reporting	Per hen on hand Jan. 1, 1925	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
								Per cent	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*
Kentucky	241	43	2,100	48	67.0	6,918	101	3.9	5.0	11.8	15.9	14.4	11.0	9.3	7.8	6.6	6.6	4.5	3.2
Tennessee	234	49	2,500	52	72.4	7,109	98	4.0	6.4	12.5	14.3	13.6	10.2	9.2	8.1	6.5	6.5	4.9	3.8
Alabama	234	25	1,201	48	50.2	5,783	115	4.8	5.5	10.9	14.7	11.7	10.9	9.4	8.7	6.7	6.7	5.1	4.9
Mississippi	238	27	1,201	46	39.5	5,524	137	4.2	6.7	11.1	13.2	11.7	11.0	9.1	8.2	6.8	6.1	6.1	5.8
Louisiana	120	31	1,318	42	57.7	6,942	119	5.1	7.5	9.8	12.9	11.2	9.6	10.3	9.2	6.5	6.7	6.2	5.0
Texas	383	47	2,202	47	69.0	7,599	107	3.4	6.9	14.1	14.4	12.2	12.0	9.0	6.8	5.9	5.7	5.6	4.0
Oklahoma	176	63	3,095	49	91.6	9,899	105	3.2	6.0	13.4	14.9	13.7	12.0	9.2	7.9	6.3	5.7	3.6	4.1
Arkansas	208	33	1,625	48	44.5	5,853	124	4.9	5.7	10.7	14.3	13.2	10.1	9.6	8.5	6.6	6.2	5.6	4.6
South Central	1,834	40	1,932	48	65.8	7,252	107.7	4.0	6.2	12.2	14.5	12.8	11.1	9.3	7.9	6.4	6.2	5.1	4.3
Montana	44	46	3,214	70	55.5	7,112	96	4.1	4.5	7.3	11.0	16.6	13.8	11.6	8.9	9.3	7.1	3.2	2.6
Wyoming	12	51	3,098	61	67.6	7,280	105	2.5	4.8	9.7	14.1	13.8	12.7	9.8	8.3	8.4	8.3	4.4	3.2
Colorado	52	56	3,290	59	78.6	9,038	111	2.2	4.1	11.6	12.9	13.8	16.7	9.7	8.4	8.1	6.1	3.6	2.8
New Mexico	22	32	1,672	52	65.4	6,507	96	4.9	7.3	12.4	12.2	12.3	11.4	9.5	8.5	8.6	5.1	4.7	3.1
Arizona	8	63	3,861	61	[1] 205.6	[1]30,490	128	6.4	6.3	20.4	10.2	16.3	6.2	13.7	3.8	4.2	8.8	2.0	1.7
Utah	21	45	3,260	72	74.6	10,063	135	3.7	3.9	10.6	14.6	10.7	10.4	14.4	7.5	6.8	6.4	4.9	6.1
Nevada	2	61	4,222	70	87.1	12,630	145	3.2	4.3	5.3	19.6	15.8	13.1	9.1	10.2	5.0	9.7	2.7	2.0
Idaho	35	47	2,936	62	72.4	9,631	133	5.5	3.9	7.4	11.9	13.3	11.9	11.8	8.9	7.7	7.6	5.7	4.4
Washington	57	63	4,518	72	109.5	20,625	188	4.3	7.0	9.9	9.1	9.5	10.0	11.4	9.5	8.5	7.2	6.3	7.3
Oregon	44	57	4,028	71	66.5	10,093	152	3.0	7.2	10.9	11.9	13.7	10.4	9.9	8.7	7.6	6.7	5.0	5.0
California	92	113	8,371	74	78.8	17,476	197	3.0	6.8	7.5	10.3	9.4	9.5	6.0	12.7	10.2	7.6	7.4	9.6
Western	389	67	4,631	70	78.7	11,734	139.6	3.7	6.1	9.7	10.9	11.5	10.8	9.6	9.9	8.7	7.2	5.6	6.3
United States	5,837	62	3,400	55	95.7	10,847	112.4	3.5	5.6	10.8	14.2	13.9	11.8	10.0	8.6	7.3	6.1	4.3	3.9
Monthly receipts of eggs at four principal U. S. markets during 1925 in per cent of yearly total								3.8	7.6	12.0	16.8	14.4	13.2	8.4	7.0	5.9	4.5	2.6	3.8

[1] Irregular and doubtful figures, in some States of minor importance in poultry production, are due to too few reports to give stable averages.
Source of data: U. S. D. A., B. A. E. Monthly Supplement Crops and Markets **3**: p. 83. March, 1926.

TABLE 116

EGG EQUIVALENTS

1 doz. eggs in shell	equal	1 lb. of frozen or liquid egg.
3⅓ lbs. liquid whole egg	equal	1 lb. dried whole egg.
2¼ lbs. liquid yolk	equal	1 lb. dried yolk.
7 lbs. liquid albumen	equal	1 lb. dried albumen.

EGG WEIGHTS

12 chicken eggs (average U. S.)	equal	1½ lbs.
12 guinea eggs	equal	17 or 18 ounces.
12 duck eggs	equal	2 to 3 lbs.
12 turkey eggs	equal	2½ to 3 lbs.
12 goose eggs	equal	4¼ to 6 lbs.
20 chicken eggs (average French)	equal	1 kilogram or 2.2 lbs.
120 chicken eggs or a great hundred (English Domestic and Danish Domestic average)	equal	16 lbs.

QUANTITY OF EGGS IN A CASE AND FREIGHT CAR

30 dozen eggs	equal	1 case (American).
400-500 cases	equal	1 car (American).
100 to 120 doz. eggs	equal	1 case (English and Continental)

MINIMUM WEIGHT OF FREIGHT CAR OF POULTRY AND EGGS

Minimum car load (live poultry)	equal	18,000 lbs.
Minimum car load (dressed poultry)	equal	20,000 lbs.
Minimum car load (eggs)*	equal	20,000 lbs.

* Intrastate and certain southwestern states. Transcontinental—26,000 lbs.

Source of data: Furnished to author by U. S. D. A., Bureau of Agricultural Economics, Washington, D. C.

TABLE 117

Freight and Express Rates from Petaluma, California, to Various Transcontinental Destinations (1925)

VIA RAILROAD FREIGHT
(Rate in cents per 100 lbs.)

From	Petaluma, California										
	Eggs				Dressed poultry				Live poultry		
To	LCL	CL	Minimum weight	Refrigeration	LCL	CL	Minimum weight	Refrigeration	LCL	CL	Minimum weight
New York, N. Y.	480	260	26,000	90.00	555	300	24,000	$110.00	1110	480	18,000
Boston, Mass.	480	260	26,000	95.00	555	300	24,000	115.00	1110	480	18,000
Philadelphia, Pa.	480	260	26,000	90.00	555	300	24,000	110.00	1110	480	18,000
Miami, Fla.	480	300	24,000	95.00	555	300	24,000	115.00	1110	480	18,000
New Orleans, La.	428	260	26,000	80.00	495	300	24,000	100.00	990	428	18,000
Detroit, Mich.	455	260	26,000	90.00	525	300	24,000	105.00	1050	455	18,000
Chicago, Ill.	443	260	26,000	75.00	510	300	24,000	95.00	1020	443	18,000

VIA AMERICAN RAILWAY EXPRESS
(Rate in cents per 100 lbs.)

New York, N. Y.		506	Any quantity			506	Any quantity	$83.16		1280	Any quantity
Boston, Mass.		506	Any quantity			506	Any quantity	83.16		1315	Any quantity
Philadelphia, Pa.		506	Any quantity			506	Any quantity	83.16		1260	Any quantity
Miami, Fla.		1035	Any quantity			1035	Any quantity	(1)		1380	Any quantity
New Orleans, La.		444	Any quantity			444	Any quantity	69.30		1070	Any quantity
Detroit, Mich.		506	Any quantity			506	Any quantity	72.23		1085	Any quantity
Chicago, Ill.		444	Any quantity			444	Any quantity	69.30		995	Any quantity

[1] Actual cost of ice.
LCL—Less than carload lots.
CL—Carload lots.
Source of data: H. C. Hallmark, General Freight Agent, Southern Pacific Company.

INDEX

PAGE

Summary ... 3
The general situation ... 5
  Importance of the industry ... 5
  Importance of poultry in California ... 7
Geographic distribution of the poultry industry ... 8
  Mississippi Valley ... 8
  Northeastern States ... 10
  Pacific Coast States ... 10
  Rocky Mountain and Southern States ... 10
Development of the poultry industry ... 11
  United States ... 11
  California ... 15
  Trend toward egg breeds in the Middle West ... 19
  Poultry other than chickens ... 20
Prices and purchasing power of eggs ... 20
  Egg prices and general commodity prices United States ... 20
  Purchasing power of eggs, California ... 26
  Comparative prices of eggs in certain cities ... 30
  Purchasing power of eggs and other agricultural commodities, United States ... 32
  Monthly index of purchasing power, San Francisco and Los Angeles ... 33
  Seasonal variation in prices of extra and pullet eggs ... 35
The egg-feed price ratio ... 36
  Egg-feed price ratio, Petaluma ... 36
  Seasonal variation ... 40
Sources of California poultry feeds ... 42
Price relationships between grades of eggs ... 43
  Relations between the quotations of pullet and extra eggs on the San Francisco and Los Angeles market ... 43
  Seasonal variation ... 44
Per capita yearly consumption of eggs ... 47
  United States ... 47
  Comparison of United States with certain foreign countries ... 47
Egg products ... 48
United States standards for eggs ... 48
Commercial hatcheries in California ... 49
Receipts of eggs ... 54
  San Francisco and Los Angeles ... 54
  Daily receipts and prices, San Francisco ... 61
  Pullet and extra eggs ... 63
Egg shipments ... 67
  Markets for California eggs ... 67
  Shipping centers for interstate movements ... 69
  Shipments from Petaluma ... 70
The New York market ... 73
  Comparative prices, New York and San Francisco ... 83

PAGE
Preference for white and brown eggs 85
Cold storage holdings 86
Shell eggs 86
Frozen eggs 89
Prices and purchasing power of chickens 92
United States 92
California 92
Seasonal variation in prices, San Francisco and Los Angeles 103
Receipts of poultry, cold storage 105
Live poultry, California 105
Dressed poultry, California 109
Cold storage holdings, Pacific area 114
Per capita consumption of poultry 117
Exports and imports of poultry and poultry products 118
The tariff on eggs and poultry 123
The international trade in poultry and poultry products 124
Foreign poultry statistics 131
North and South America (Canada, Mexico, Argentine and other South American countries) 131
Effect of European climate on poultry production and quality 133
European statistics (United Kingdom, Ireland, Denmark, Germany, Russia, Poland, Latevia, France, Belgium, Holland, Italy, Hungary, Roumania Bulgaria) 134
Africa (Egypt, Algeria, Morocco, South Africa) 141
China, Japan, Australia, New Zealand 142
International trade—poultry 145
Cost of producing eggs, Sonoma County, California, 1924–1925 146
Size of flocks 146
Production as related to costs and profits 151
Hatching and commercial egg farms 153
Appendix—Tables 155

STATION PUBLICATIONS AVAILABLE FOR FREE DISTRIBUTION

BULLETINS

No.

253. Irrigation and Soil Conditions in the Sierra Nevada Foothills, California.
261. Melaxuma of the Walnut, "Juglans regia."
262. Citrus Diseases of Florida and Cuba Compared with Those of California.
263. Size Grades for Ripe Olives.
268. Growing and Grafting Olive Seedlings.
273. Preliminary Report on Kearney Vineyard Experimental Drain.
275. The Cultivation of Belladonna in California.
276. The Pomegranate.
277. Sudan Grass.
278. Grain Sorghums.
279. Irrigation of Rice in California.
283. The Olive Insects of California.
294. Bean Culture in California.
304. A Study of the Effects of Freezes on Citrus in California.
310. Plum Pollination.
312. Mariout Barley.
313. Pruning Young Deciduous Fruit Trees.
319. Caprifigs and Caprification.
324. Storage of Perishable Fruit at Freezing Temperatures.
325. Rice Irrigation Measurements and Experiments in Sacramento Valley, 1914–1919.
328. Prune Growing in California.
331. Phylloxera-Resistant Stocks.
335. Cocoanut Meal as a Feed for Dairy Cows and Other Livestock.
339. The Relative Cost of Making Logs from Small and Large Timber.
340. Control of the Pocket Gopher in California.
343. Cheese Pests and Their Control.
344. Cold Storage as an Aid to the Marketing of Plums.
346. Almond Pollination.
347. The Control of Red Spiders in Deciduous Orchards.
348. Pruning Young Olive Trees.
349. A Study of Sidedraft and Tractor Hitches.
350. Agriculture in Cut-over Redwood Lands.
352. Further Experiments in Plum Pollination.
353. Bovine Infectious Abortion.
354. Results of Rice Experiments in 1922.
357. A Self-mixing Dusting Machine for Applying Dry Insecticides and Fungicides.
358. Black Measles, Water Berries, and Related Vine Troubles.
361. Preliminary Yield Tables for Second Growth Redwood.
362. Dust and the Tractor Engine.
363. The Pruning of Citrus Trees in California.
364. Fungicidal Dusts for the Control of Bunt.
365. Avocado Culture in California.
366. Turkish Tobacco Culture, Curing and Marketing.
367. Methods of Harvesting and Irrigation in Relation of Mouldy Walnuts.
368. Bacterial Decomposition of Olives during Pickling.
369. Comparison of Woods for Butter Boxes.

No.

370. Browning of Yellow Newtown Apples.
371. The Relative Cost of Yarding Small and Large Timber.
372. The Cost of Producing Market Milk and Butterfat on 246 California Dairies.
373. Pear Pollination.
374. A Survey of Orchard Practices in the Citrus Industry of Southern California.
375. Results of Rice Experiments at Cortena, 1923.
376. Sun-Drying and Dehydration of Walnuts.
377. The Cold Storage of Pears.
379. Walnut Culture in California.
380. Growth of Eucalyptus in California Plantations.
381. Growing and Handling Asparagus Crowns.
382. Pumping for Drainage in the San Joaquin Valley, California.
383. Monilia Blossom Blight (Brown Rot) of Apricot.
385. Pollination of the Sweet Cherry.
386. Pruning Bearing Deciduous Fruit Trees.
387. Fig Smut.
388. The Principles and Practice of Sun-drying Fruit.
389. Berseem or Egyptian Clover.
390. Harvesting and Packing Grapes in California.
391. Machines for Coating Seed Wheat with Copper Carbonate Dust.
392. Fruit Juice Concentrates.
393. Crop Sequences at Davis.
394. Cereal Hay Production in California. Feeding Trials with Cereal Hay.
395. Bark Diseases of Citrus Trees.
396. The Mat Bean (Phaseolus aconitifolius).
397. Manufacture of Roquefort Type Cheese from Goat's Milk.
398. Orchard Heating in California.
399. The Blackberry Mite, the Cause of Redberry Disease of the Himalaya Blackberry, and its Control.
400. The Utilization of Surplus Plums.
401. Cost of Work Horses on California Farms.
402. The Codling Moth in Walnuts.
403. Farm-Accounting Associations.
404. The Dehydration of Prunes.
405. Citrus Culture in Central California.
406. Stationary Spray Plants in California.
407. Yield, Stand and Volume Tables for White Fir in the California Pine Region.
408. Alternaria Rot of Lemons.
409. The Digestibility of Certain Fruit By-products as Determined for Ruminants.
410. Factors Affecting the Quality of Fresh Asparagus after it is Harvested.
411. Paradichlorobenzene as a Soil Fumigant.
412. A Study of the Relative Values of Certain Root Crops and Salmon Oil as Sources of Vitamin A for Poultry.
413. The California Poultry Industry; a Statistical Study.
414. Planting and Thinning Distances for Deciduous Fruit Trees.

No.
87. Alfalfa.
117. The Selection and Cost of a Small Pumping Plant.
127. House Fumigation.
129. The Control of Citrus Insects.
136. *Melilotus indica* as a Green-Manure Crop for California.
144. Oidium or Powdery Mildew of the Vine.
157. Control of the Pear Scab.
160. Lettuce Growing in California.
164. Small Fruit Culture in California.
166. The County Farm Bureau.
170. Fertilizing California Soils for the 1918 Crop.
173. The Construction of the Wood-Hoop Silo.
178. The Packing of Apples in California.
179. Factors of Importance in Producing Milk of Low Bacterial Count.
190. Agriculture Clubs in California.
199. Onion Growing in California.
202. County Organizations for Rural Fire Control.
203. Peat as a Manure Substitute.
209. The Function of the Farm Bureau.
210. Suggestions to the Settler in California.
212. Salvaging Rain-Damaged Prunes.
215. Feeding Dairy Cows in California.
217. Methods for Marketing Vegetables in California.
220. Unfermented Fruit Juices.
228. Vineyard Irrigation in Arid Climates.
230. Testing Milk, Cream, and Skim Milk for Butterfat.
231. The Home Vineyard.
232. Harvesting and Handling California Cherries for Eastern Shipment.
234. Winter Injury to Young Walnut Trees during 1921–22.
235. Soil Analysis and Soil and Plant Inter-relations.
236. The Common Hawks and Owls of California from the Standpoint of the Rancher.
237. Directions for the Tanning and Dressing of Furs.
238. The Apricot in California.
239. Harvesting and Handling Apricots and Plums for Eastern Shipment.
240. Harvesting and Handling Pears for Eastern Shipment.
241. Harvesting and Handling Peaches for Eastern Shipment.
243. Marmalade Juice and Jelly Juice from Citrus Fruits.
244 Central Wire Bracing for Fruit Trees.
245. Vine Pruning Systems.
247. Colonization and Rural Development.
248. Some Common Errors in Vine Pruning and Their Remedies.
249. Replacing Missing Vines.
250. Measurement of Irrigation Water on the Farm.
252. Supports for Vines.
253. Vineyard Plans.
254. The Use of Artificial Light to Increase Winter Egg Production.

No.
255. Leguminous Plants as Organic Fertilizer in California Agriculture.
256. The Control of Wild Morning Glory.
257. The Small-Seeded Horse Bean.
258. Thinning Deciduous Fruits.
259. Pear By-products.
261. Sewing Grain Sacks.
262. Cabbage Growing in California.
263. Tomato Production in California.
264. Preliminary Essentials to Bovine Tuberculosis Control.
265. Plant Disease and Pest Control.
266. Analyzing the Citrus Orchard by Means of Simple Tree Records.
267. The Tendency of Tractors to Rise in Front: Causes and Remedies.
269. An Orchard Brush Burner.
270. A Farm Septic Tank.
272. California Farm Tenancy and Methods of Leasing.
273. Saving the Gophered Citrus Tree.
274. Fusarium Wilt of Tomato and its Control by Means of Resistant Varieties.
276. Home Canning.
277. Head, Cane, and Cordon Pruning of Vines.
278. Olive Pickling in Mediterranean Countries.
279. The Preparation and Refining of Olive Oil in Southern Europe.
281. The Results of a Survey to Determine the Cost of Producing Beef in California.
282. Prevention of Insect Attack on Stored Grain.
283. Fertilizing Citrus Trees in California.
284. The Almond in California.
285. Sweet Potato Production in California.
286. Milk Houses for California Dairies.
287. Potato Production in California.
288. Phylloxera Resistant Vineyards.
289. Oak Fungus in Orchard Trees.
290. The Tangier Pea.
291. Blackhead and Other Causes of Loss of Turkeys in California.
292. Alkali Soils.
293. The Basis of Grape Standardization.
294. Propagation of Deciduous Fruits.
295. The Growing and Handling of Head Lettuce in California.
296. Control of the California Ground Squirrel.
298. The Possibilities and Limitations of Coöperative Marketing.
299. Poultry Breeding Records.
300. Coccidiosis of Chickens.
301. Buckeye Poisoning of the Honey Bee.
302. The Sugar Beet in California.
303. A Promising Remedy for Black Measles of the Vine.
304. Drainage on the Farm.
305. Liming the Soil.
306. A General Purpose Soil Auger and its Use on the Farm.
307. American Foulbrood and its Control.
308. Cantaloupe Production in California.

The publications listed above may be had by addressing

College of Agriculture,
University of California,
Berkeley, California.

15*m*-11,'26